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Subpart A - General Information

539.0 Mission

The mission of the Natural Resources Conservation Service (NRCS) Plant Materials Program (PMP) is to develop, test, and transfer plant science technology to meet customer and natural resource needs. NRCS PMP activities are consistent with the objectives of the current United States Department of Agriculture (USDA) and NRCS Strategic Plans (Section 539.20), namely to provide timely and effective vegetative solutions for identified resource needs.

539.1 Purpose

A. The purpose of the NRCS PMP is to:

- (1) Assemble, test, and release plant materials for conservation use.
- (2) Determine techniques for successful use and management of conservation plants.
- (3) Facilitate the commercial increase of conservation plants.
- (4) Provide for the timely development and transfer of effective applied plant science technology to solve conservation problems.
- (5) Promote the use of plant science technology to meet the goals and objectives of the USDA and NRCS Strategic Plans (Sections 539.20 and 539.21).

B. To accomplish this purpose, NRCS maintains and operates a PMP utilizing a network of Plant Materials Centers (PMC) (see Section 539.22) and Plant Materials Specialists to coordinate its on-going conservation operations activities. PMP strategic goals and objectives are described in Section 539.21.

539.2 Policy

The Plant Materials Program:

- (1) Works to meet the goals and objectives of the USDA and NRCS Strategic Plans and to comply with the authorities described in Section 539.11.
- (2) Works to meet the objectives of other Federal, State, and local programs and initiatives.
- (3) Cooperates with other partners, with the major emphasis being to provide timely and effective state-of-the-art plant science technology.
- (4) Performs activities and provides services consistent with USDA and NRCS Affirmative Action, Equal Employment Opportunity, and Civil Rights policies.

539.3 Purpose of the Manual

The National Plant Materials Manual (NPMM) establishes policies and procedures for plant materials activities within NRCS. This manual is meant to complement all established USDA and NRCS policies and guidelines.

539.4 Changes to the Manual

A. Periodic review of the NPMM may be undertaken by the National Program Leader (NPL)-Plant Materials with revisions to policy and procedures made as needed.

B. All deviations from policy or procedure found in the NPMM must be reviewed and approved by the NPL in writing prior to implementation. Deviations typically affect only local operations or the local PMC for which the deviation is approved. Approved deviations to policy or procedure will be filed in the appropriate section(s) of the NPMM.

C. Proposed amendments to policy or procedure found in the NPMM must be submitted to the NPL for consideration. Amendments typically pertain to national operations. The NPL will determine the appropriate procedure for review and final disposition of the proposed amendment.

D. The following items should be submitted to the NPL to evaluate requests for deviations or changes to the NPMM.

- (1) Date of request.
- (2) Requestor's name, address, email address, and phone number.
- (3) Is this a deviation or amendment?
- (4) Does this request affect local, State, regional, or national level(s)?
- (5) Reference the parts and page numbers in the NPMM dealing with the request for deviation or amendment.
- (6) Describe proposed changes to the existing text in the NPMM or proposed new text to be added to the NPMM.
- (7) Justification for why the deviation or an amendment is needed.
- (8) Letter must include areas for concurrence by the appropriate State Conservationist and

approval by the NPL. All requests should be forwarded to the NPL through the State Conservationist.

539.5 Supplements to the Manual

A. Supplements may be required to provide additional details to accommodate specific national, regional, State, or local plant materials needs, policies, or regulations. Supplements are not meant to change the policies and procedures found in the NPMM. Supplements must be filed in accordance with the NRCS Directives System. Copies of all supplements to the NPMM will be provided to the NPL.

B. Examples of supplements include Long Range Plans (LRP) for State PM activities, PMC LRP, PMC Business Plan, PMC Workload Analysis, and details of State regulations pertaining to plant release selection, certification, or marketing.

Subpart B - Authorities for the Plant Materials Program

539.10 General

The authority to operate a PMP is provided for in Federal law. A brief description of the authorities relevant to the PMP is found in Section 539.11. Full text for each of these authorities can be found on the Internet or requested from the NPL.

539.11 Description of Authorities

Authority for the NRCS PMP is provided by:

(1) Soil Conservation Act of 1935

The Soil Conservation Act of 1935 (Public Law (P.L.) 74-46, 49 Statute 163; 16 USC 590 [a-f]) declares that it is the policy of Congress to provide permanently for the control and prevention of soil erosion and, thereby, preserve natural resources. This act provides for basic authority for the Soil Conservation Service (SCS) (now NRCS) PMP.

(2) Soil and Water Resources Conservation Act of 1977

The Soil and Water Resources Conservation Act of 1977 (P.L.95-192; 16 USC 40) declares that it is the policy of Congress to ensure that USDA possesses information, technical expertise, and a delivery system for providing assistance to land users with respect to conservation and use of soils; plants; woodlands; watershed protection and flood prevention; the conservation, development, utilization, and disposal of water; animal husbandry; fish and wildlife management; recreation; community development; and related resource uses.

(3) Department of Agriculture Reorganization Act of 1994

The Department of Agriculture Reorganization Act of 1994 (7 USC 6962) authorizes the Secretary to establish and maintain within the Department an agency called the Natural Resources Conservation Service. This Act changed SCS to NRCS.

(4) NRCS Policy on the Operation of Plant Materials Centers (2009)

This policy, issued January 9, 2009, is contained in 7 CFR 613 and the Federal Register, Vol. 72 No. 234 (September 3, 2008) and clarifies the role, activity, and function of NRCS PMCs to support NRCS conservation activities. This CFR updates information on NRCS conservation activities and PMCs as described in P.L. 74-46. This CFR is presented in Section 539.23 because of its importance to the PMP.

Subpart C - Exhibits

539.20 NRCS Goals and Objectives

[Click here for a copy of NRCS Goals and Objectives](#)

539.21 NRCS PMP Goals and Objectives

[Click here for a copy of NRCS PMP Goals and Objectives](#)

539.22 Locations and Service Areas of Plant Materials Centers

[Click here for a copy of the Locations and Service Areas of Plant Materials Centers](#)

539.23 Code of Federal Regulations – Part 613 - Plant Materials Centers

[Click here for a copy of the Code of Federal Regulations](#)

Subpart A - Plant Materials Operations

540.0 Roles and Responsibilities

A. The following roles and responsibilities provide support for the Plant Materials Program (PMP). The majority of these roles are currently established and functioning as described. The roles described may or may not be valid depending on the structure which exists at the national, regional, or State level. Titles of positions and committees are generally the most accepted ones or the titles currently in use. Titles may be different but the responsibilities and functions of the position or committee are comparable.

B. Staff Positions - National Responsibilities

- (1) **Chief, NRCS** - The Chief, with line and staff assistance, provides overall strategic planning and national direction for the agency, including plant science activities.
- (2) **Deputy Chief for Science and Technology** - The Deputy Chief for Science and Technology provides overall strategic planning and national direction for national science and technology activities, including plant science activities.
- (3) **Director, Ecological Sciences Division** - The Director of the Ecological Sciences Division provides management and leadership for the Division, including plant science activities.
- (4) **National Program Leader - Plant Materials** - The National Program Leader - Plant Materials (NPL-PM) is a staff member of the Ecological Sciences Division. The NPL provides overall leadership for program integration and coordination of technology development and transfer in the PMP and other programs. Responsibilities include:
 - (i) Communicating with and providing information to agency administrators, national program leaders, legislative personnel, and other national level partners regarding program accomplishments and program needs.
 - (ii) Providing leadership and opportunities for discipline training.
 - (iii) Providing leadership in performance evaluation and accountability within the PMP.
 - (iv) Recommending budget allocations for Plant Material Centers (PMC).
 - (v) Communicating national PMP information, priorities, needs, and concerns to appropriate region and State levels.
 - (vi) Participating in national and regional strategic planning efforts.
 - (vii) Providing leadership and direction for information coordination.
 - (viii) Encouraging, guiding, assessing, and assuring diversity and equity in program operations and delivery.
- (5) **National Plant Materials Information Coordinator** - The Plant Materials (PM) Information Coordinator provides overall coordination for information management to the PMP. Responsibilities include:
 - (i) Serving as coordinator and facilitator in efforts to provide technology transfer of PM data to field offices.
 - (ii) Developing and maintaining a data management system for PM.
 - (iii) Serving as data steward for PM databases.
 - (iv) Serving as administrator of PM information on the Internet.
 - (v) Developing and maintaining an information system for PM.
- (6) **National Plant Materials Center Manager** - The National Plant Materials Center (NPMC) Manager is responsible for operation of the NPMC and its technical programs. Responsibilities include:
 - (i) Managing and administering the NPMC and the activities of a national scope as directed by the NPL.
 - (ii) Coordinating PM data management and Web site development and population;
 - (iii) Coordinating the collection and preservation of all PM publications and national PM information.
 - (iv) Collecting and preserving information on PM releases.
 - (v) Assisting with PMP promotional activities;
 - (vi) Providing release and germplasm processing assistance to the PMP;
 - (vii) Coordinating the export and import of plants with the Agricultural and Plant Health Inspections Service (APHIS).
 - (viii) Those activities defined for the PMC Manager as described in Section 540.0(D)(5).
- (7) **National Technology Support Center (NTSC) Plant Materials Specialist** - The NTSC PM Specialist serves as the lead contact and technical specialist for all PM-related technology nationally or in a region. Responsibilities include:
 - (i) Providing direct technical assistance and policy guidance to State Conservationists, their staffs, and the NTSC staff.
 - (ii) Serving as a liaison with the NPL and advising the NPL on key issues within their region.
 - (iii) Provide a technical review and scoring of new releases before the release gets approved, and a review of significant technical documents before they are finalized.
 - (iv) Initiating and coordinating PM work and technology transfer across State and regional boundaries.
 - (v) Initiating and coordinating joint projects and work with other Federal and State agencies, groups, and organizations.

(8) **NTSC Technology Coordinator** - The Technology Coordinator (TC) is on the NTCS staff and will facilitate technology development for NRCS nationally and in each region. Responsibilities include:

- (i) Being a primary contact person and liaison for NRCS Technical Support Centers, the NPL-PM, other agencies, and partners.
- (ii) Serving as liaison with national program managers and technology committees.
- (iii) Facilitating inter- and intra-region and national technology development.
- (iv) Assisting with the identification of customer needs on State and regional levels, and the coordination of product development and transfer.
- (v) Serving as a member of the Regional Technology Workgroup.

C. Staff Positions - Regional Responsibilities

(1) **Regional Conservationist** - The Regional Conservationist (RC), assisted by the State Conservationists, provides overall administrative leadership, support, integration, and coordination of plant science activities within and between regions, national program leaders, and national and State partners. Responsibilities include:

- (i) Providing leadership in the implementation of a regional organizational structure, which will allow key plant science resource needs and priorities to be met.
- (ii) Ensuring PMP integration at State, regional, and national levels.
- (iii) Providing leadership in the evaluation and accountability of all program activities and accomplishments.

D. Staff Positions - State and Local Responsibilities

(1) **State Conservationist** - The State Conservationist (STC), assisted by the staff, provides overall administrative leadership, support, integration, and coordination of the plant science activities within and between States and with other local, State, and regional partners. Responsibilities include:

Responsibilities include:

- (i) Providing leadership in the development and implementation of a State organizational structure which will allow key plant science resource needs and priorities to be met.
- (ii) Ensuring PMP integration at local, State, and regional levels.
- (iii) Providing leadership in the evaluation and accountability of all program activities and accomplishments, and directing resources and staff as necessary to address priority needs with recommendations from the State program manager and State technical staff.
- (iv) Overseeing the administration and operation of the PMC or Centers located in their State.
- (v) Ensuring that the PM needs of all States within the PMC service area are met;
- (vi) STCs both with and without PMCs will actively coordinate, organize, and participate in annual PMC advisory committee meetings.
- (vii) Appointing the State Technology Contact.
- (viii) Encourage field offices to be involved with PM activities through germplasm collection, test plantings, and demonstration plantings.
- (ix) Delegate to PMC Managers the authority to manage discretionary spending within the PMC budget.
- (x) Provide a PM Specialist position (funded by CO-01 as part of the State resources staff) to support PM technology transfer activities within the PMC service area.

(2) **State Resource Conservationist** - As directed by the STC, the State Resource Conservationist (SRC), or equivalent position within the State, provides leadership of the State technical support staff. Responsibilities include:

- (i) Ensuring coordination, technology development and transfer, support, integration, and coordination of plant science activities with other ecological sciences staff within the State.
- (ii) SRCs both with and without PMCs will actively coordinate, organize, and participate in annual PMC technical committee meetings.
- (iii) Include the PM Specialist and PMC Manager in State Ecological Sciences/Resources staff meetings (for States with these positions).

(3) **State Technology Contact** - The State Technology Contact coordinates technology development within the State. Responsibilities include:

- (i) Being the primary contact person and liaison for NTSC, other agencies, and partners.
- (ii) Coordinating the identification of customer needs on State and regional levels, and the coordination of product development and transfer.
- (iii) Serving as liaison with the Regional Technology Coordinator and member of the Regional Technology Committee.

(4) **Plant Materials Specialist** - The PM Specialist is a member of the State technical support staff in each State served. The PM Specialist may also be referred to as a "Plant Resource Specialist" or "Plant Materials Program Specialist." A PM Specialist may serve multiple States and provide support for one to three PMCs. Responsibilities include:

- (i) Providing leadership in the coordination of PM activities with the NPL, STC, PMC Advisory Committee, PMC Manager, NTSC PM Specialist, State Technology Contact, NTSCs, State Technology staff, NRCS field offices, conservation districts, and other local, State, and regional offices and partners;
- (ii) Providing integration of critical PM information into other technical disciplines (e.g., agronomy, biology, cultural resources, forestry, and grazing) and conservation programs.
- (iii) Integrating key PM and plant technologies into the Field Office Technical Guide for

- conservation planning and application activities.
- (iv) Providing leadership in innovative plant technology to the field to meet emerging conservation issues.
 - (v) Providing leadership in promoting awareness of PM technology and outreach in PM activities to conservation partners, cooperators, and the public.
 - (vi) Maintaining working partnerships and coordination with agricultural experiment stations, the Agricultural Research Service (ARS), Plant Introduction Centers, Crop Improvement Associations, seed and plant growers and dealers, non-government organizations, etc..
 - (vi) Developing the State Long Range Plan (LRP) for PM in States served, and integration of PMP objectives into the State business plan (Section 540.50).
 - (viii) Provide coordination and oversight in the development of the PMC LRP and other PMC operational documents.
- (5) **Plant Materials Center Manager** - The PMC Manager is a member of the State technical support staff in each State served. Responsibilities include:
- (i) Managing and administration of the PMC including budget, procurement, personnel; management of the PMC facility and equipment; and development and management of reimbursable agreements.
 - (ii) Providing leadership in completing plant science technology needs assessment and development of the PMC LRP, PMC Business Plan, Workload Analysis, Study Plans, and other operational documents.
 - (iii) Providing leadership and coordination in the execution of the annual PMC Business Plan, including development of cooperative research projects with other agencies and partners.
 - (iv) Reporting of activities and accomplishments in appropriate databases and systems.
 - (v) Developing and transferring technology products for identified customers, such as State technical support staff, NRCS field offices, Tribal partners, other government agencies, land users, and universities.
 - (vi) Providing direct assistance and training to NRCS field offices, conservation districts, and partners on PM activities.
 - (vii) Ensuring that NRCS conservation plant germplasm is maintained and available to meet conservation needs.
 - (viii) Utilizing the PMC for rapid response to emerging and critical vegetative needs.
- (6) **Area Conservationist** - The Area Conservationist (AC), or equivalent position within the State, is responsible for providing overall administrative leadership, support, integration, and coordination of the plant science activities within and between areas, the State office, and with other local and State partners.
- (7) **District Conservationist** - The District Conservationist (DC), or equivalent position within the State, is responsible for assisting Soil and Water Conservation Districts (SWCD) in carrying out plant science-related programs and activities. Field offices assist with PM activities which may include:
- (i) Assessing local resource and conservation problems and needs in conjunction with the SWCD.
 - (ii) Promoting plant science technology and improved PM.
 - (iii) Initial seed and plant collecting for improved plant selection.
 - (iv) Assisting with installation and evaluation of field plantings, conservation field trials, and demonstration plantings.
- (8) **Conservation Districts** - Regional, State, area, and district conservationists are to keep conservation districts and other identified partners informed and actively involved with ongoing and proposed plant science-related programs, projects, and activities.
- (9) **Regional Technical Teams** - These NRCS entities will provide technical guidance and support at State or regional levels as appropriate according to the developed organizational structure.

E. Committee Responsibilities

- (1) **National Plant Materials Advisory Committee**
- (i) The National PM Advisory Committee provides guidance to the National PMP. The principal duties of the National PM Advisory Committee are to:
 - Review and provide input for strategic planning within the PMP.
 - Discuss and act on issues which may have major impacts on the PMP.
 - Identify concerns of national significance from the areas they represent.
 - Recommend, review, and/or approve for consideration by the Chief, or other top level NRCS administrators, agreements or initiatives needed by PMP to achieve NRCS objectives.
 - Increase the awareness level and support of the PMP at all levels of NRCS.
 - (ii) Members of the committee may include:

- STCs appointed by the Deputy Chief for Science and Technology and Regional Conservationists.
- The Deputy Chief for Science and Technology or his/her representative;
 - The NPL-PM.
 - The National PM Information Coordinator and NTSC PM Specialist.
 - Representatives from the National Association of Conservation Districts (NACD) or other national organizations.
 - Representatives from other appropriate Federal agencies or NRCS offices as determined by the committee.
 - Representatives from private industry.
- (iii) The committee will choose a chairperson or co-chairperson. Meetings will normally be rotated around the country to expose the committee to new resource concerns. Meeting frequency is 2-4 times per year or as determined by the committee.
- (2) **National Plant Materials Technical Committee**
- (i) The National PM Technical Committee provides input to the National PM Advisory process. The National PM Technical Committee is composed of representatives from all regions of the country. **Responsibilities include:**
- Providing overall technical leadership in the identification, integration, and prioritization of plant technology needs on a national scale.
 - Identifying concerns and developing recommendations, which are submitted to the National PM Advisory Committee for review and approval.
 - Discussing and acting on issues which may have major impacts on the PMP.
- (ii) **Members may include:**
- The NPL.
 - Appropriate PMC Managers and technical staff, PM Specialists, and NTSC PM Specialists.
 - Regional Technology Coordinators.
 - The National PM Information Coordinator and NPMC Manager.
 - Appropriate field and area personnel.
 - Advisors to the committee, which may include appropriate partners.
- (iii) **Meeting frequency is 1-3 times per year as determined by the NPL.**
- (3) **Regional Plant Materials Advisory Committee**
- (i) **The purpose of the committee is to provide leadership in the coordination, communication, support, and integration of plant science needs and/or developed technology within and between regions, the National PM Advisory Committee, and other regional and national partners. The committee:**
- Provides leadership in the integration of all PMP activities into one process for technology development.
 - Reviews, approves, and arranges for the carrying out of projects and activities, and develops a regional LRP for PM.
 - Takes leadership in addressing identified priority resource needs and concerns and ensures the needed action is presented within the Regional Strategic Plan (annual or multi-year plan of work).
- (ii) **Members may include:**
- STCs in the region.
 - Regional Conservationist.
 - NTSC PM Specialist.
 - Advisors to the committee, who may include the NPL-PM and other members as determined appropriate by the committee to serve as advisors.
- (iii) **Meetings will normally be chaired by the STC in the host State and rotate among States in the region. Meeting frequency will be annually or as determined by the committee.**
- (4) **State Conservationist's Plant Materials Advisory Committee**
- (i) **The purpose of the committee is to provide leadership in the coordination, communication, support, and integration of applied plant science technology within and between States within the service area, the Regional and National PM Advisory Committees, and other partners. The STC PM Advisory Committee:**
- Provides leadership in the integration of all program activities into one process for technology development.
 - Ensures that identified priority resource needs and actions are included in the State Strategic Plans.
 - Reviews and approves the PMC LRP.
 - Reviews and approves PMC studies and activities to address the needs in the State and PMC LRP.
- (ii) **Members include:**
- STCs in the PMC service area.
 - Advisors to the committee who may include the PM Specialist, PMC staff, NTSC PM Specialist, NPL-PM, and other Federal, State, and private members representing the various interests found within the service area of the PMC. These advisory members may or may

not have a vote in the prioritization process.

(iii) Meetings will normally be chaired by the STC in the host State and rotate among States in the PMC service area. Meeting frequency will be annually.

(5) Regional Technology Workgroup

The Regional Technology Workgroup coordinates technical support needs and facilitates the development of technology for the region. Members of this workgroup include the NTSC Technology Coordinator, State Technology Contacts (one per State), and NTSC representatives as assigned (advisory capacity).

(6) Plant Materials Technical Committee

(i) The PM Technical Committee provides input to the PM Advisory process. The PM Technical Committee may be on a State, multistate, or other regional/local level for a single PMC or multiple PMCs. Responsibilities include:

Providing overall technical leadership in the identification, integration, and prioritization of plant technology needs.

Developing recommendations for addressing needs and submitting information to the STC's PM Advisory Committee for review and approval.

Promoting the transfer of developed applied science technology.

(ii) Members may include:

STCs or their representatives, such as the SRC.

State and multistate technical staff.

Appropriate PMC Managers and technical staff, PM Specialists, NTSC PM Specialist, and Regional Technology Coordinator.

State Technical Contact.

Representatives from Federal and State agencies.

Appropriate field and area personnel.

Advisors to the committee, which may include appropriate partners.

(iii) Meeting frequency will be annually or as determined by the committee. PM Technical Committees typically meet prior to a STC's PM Advisory Committee meeting to discuss PM issues to be brought to the STCs.

(7) State Plant Materials Committee

(i) The State PM Committee is critical for the integration of PM activities into field office operations and the needs of the field office into the PM program. Each State will have a State PM Committee. Responsibilities include:

Serving as a focal point for the identification and prioritization of key local and State plant issues, concerns, and product needs.

Developing a State PM LRP which includes prioritized plant issues, concerns, and needs, along with proposed action items.

Developing an annual State PM plan.

Ensuring identified local and State plant science needs are presented to the appropriate decision makers.

Ensuring that the developed plant technology is disseminated to meet customer needs.

(ii) Members may include:

The SRC, or equivalent.

Appropriate NRCS State, area, and/or regional specialists.

District and area personnel.

PM Specialist and PMC personnel, NRCS State technical specialists, and other partners as determined by the committee to serve as advisors. (The PM Specialist or PMC Manager can chair or facilitate but should not direct the meetings.)

(iii) Meeting frequency will be determined by the committee. It may be necessary for a PM Specialist and/or PMC Manager to work closely with their SRC to initiate or keep the committee functioning.

(8) Standing or Ad Hoc Program Committees

Standing or ad hoc committees provide guidance or assistance to the NPL on specific issues. Standing or ad hoc committees can be formed and dissolved by the NPL, depending on the needs of the program. Examples include: strategic planning committee, PM information committee, Web site information committee, PM manual revision committee, etc.

540.1 Plant Materials Long Range Planning

A. General

(1) LRPs are developed to direct PM activities at the national, regional, State, or local levels. A LRP for PM will be developed and implemented to identify, prioritize, and integrate customer, resource, and program needs. The LRPs will help facilitate the development and transfer of plant technology to address priority concerns. The LRP is analogous to a strategic plan.

(2) National, regional, or State LRP should be of sufficient scope to serve as a basis for the development of the LRP for the servicing PMC(s), and provide direction for PM-related activities

at the level (i.e., State, PMC service area, regional) for which the plan was developed.

(3) Regional and State LRPs will be filed as a supplement to the NPMM. Electronic copies will be sent to the NPL-PM and the NPMC.

B. Contents of a PM LRP

An example of a PM LRP is included in Section 540.51. The PM LRP should include the following items:

(i) Introduction

Purpose (objectives) of the plan.

Those involved with the development of the plan (listing of partners).

Process/procedure used to identify customers and prioritize concerns/needs at appropriate level of development (i.e., State, PMC service area, regional, and national). The process or procedure should function within the scope of the organizational structure in place. This may be completed from a local, State(s), regional, and/or national level, as appropriate.

(ii) Description of concerns/needs - This section may include:

A description of specific prioritized resource and non-resource related problems and needs. Resource problems and needs will be classified by NRCS Goals and Objectives (Section 539.20). Non-resource needs may include promotion of activities, training provided, and outreach efforts to minority and socially disadvantaged groups and other underserved clientele. The need must be specific enough to allow the development of action items by the servicing PMC(s).

General discussion of current knowledge for each identified need (is current information available to solve the need?).

Geographic location [include map(s) or Major Land Resource Areas (MLRAs), now Common Resource Areas (CRAs), as appropriate], ecological setting (land use, site description, soils, cause and effect information, etc.), and area of extent (approximate size of problem area in acres) of each identified need.

Proposed action items identified to help solve the high priority resource and non-resource related needs. This may include information on field plantings and future seed collections needed to meet objectives.

(iii) Supporting Documentation, Attachments, and References

Attachments may include a listing of State committee members, references used to prepare the LRP, and a summary of needs and actions which will be taken.

C. Development of the LRP

The responsibility for development of the LRP depends on the level at which the plan was developed. The PM Specialist(s) and PMC Manager(s) will take leadership in plan development for the applicable organization level. At the State level, the plant science or technical committee would be responsible. At the PMC service area level, the STC advisory or multistate technical committee would be responsible. At the regional level, the regional advisory committee would be responsible.

D. Review of the LRP

The LRP will be reviewed annually by the appropriate committee and approved by the advisory committee.

540.2 Operation and Administration of the Plant Materials Centers

A. General

(1) A PMC is a field unit operated by NRCS or by another agency or organization in cooperation with NRCS. It consists of the staff, land, buildings, equipment, and other items needed for the development and transfer of new plant science technology.

(2) Service areas of PMCs generally cover parts of States that have common land and climatic characteristics and are strategically located to serve multiple MLRAs, otherwise referred to as eco-regions. The location and service area of each PMC is shown in Section 539.22.

B. PMC Operations

PMC operations will follow established NRCS administrative policies and procedures. Administrative procedures are handled directly with the State office in the State where the PMC is located.

Guidance for operations is provided in NRCS policy and guidelines, in the NPMM, in State supplements, and through specific instructions from appropriate administrative personnel.

(i) Administrative Activities

Equipment and buildings - The PMC Manager is to review and update, as needed, the long range schedule of acquisition, replacement, or repair of equipment and buildings. The plan is reviewed by the STC responsible for the operation of the Center. A copy of the revised schedule is to be sent to the NPL annually when requested. The schedule is to be used in requesting the allocation of funds to meet priority needs. Inventory of all NRCS owned buildings and structures is maintained in the USDA Corporate Property Automated

Information System (CPAIS) database. PMC managers will work with their State office property management specialist to verify the accuracy of CPAIS information.

Property utilization - Each PMC should show the need and use for all land managed by the PMC. The property utilization survey is a good tool for planning field space and justifying the land being used by the PMC.

Filing - Correspondence, forms, and reference materials are filed according to the NRCS Directives System. Electronic files should be stored in electronic folders according to the NRCS Directives System and/or appropriate systems to meet the needs of the PMC. Electronic files should be shared over networks as appropriate and kept in common directories if possible. Retention of electronic files follows the same management as paper files. Electronic files should be backed up and/or archived when no longer needed on a daily basis.

Inventory - Personal property inventories are completed, updated, and filed according to NRCS policy.

Budget - PMC budgets are developed annually by the PMC Manager and State office in a manner to reflect the commitment of resources to PMC projects. PMC budget requests are initiated by the NPL and the information is required in May or June of each year. Budgets are to be reviewed and approved by the STC. Centers are responsible for fiscal management within the budget limitation and as delegated by the STC. The PMC is to use appropriate software or other methods to assist in budget management.

Procurement - Procurement matters are to be conducted according to procedures in accordance with the Federal Acquisition Regulations and by guidelines established by the State office which provides administrative support to the PMC. Centers procure supplies to operate the PMC and conduct plant science studies. These supplies are often outside the norm for NRCS, due to the unique functions of PMCs, and can include other PM for standards of comparison, testing, and demonstration.

Cooperative Agreements - PMCs enter into cooperative agreements, Memoranda of Understanding, and Memoranda of Agreement to augment and enhance PM activities and the PMC budget in their States, in accordance with NRCS administrative procedures. Such agreements may be for the lease of land or buildings to operate a PMC, for reimbursable projects with cooperators, and for agreements where services are rendered or exchanged.

(ii) Personnel

Classification - Employees at a PMC may include a manager/team leader, assistant manager, technical specialists, field technicians, secretary/clerk, seasonal employees, and volunteers. These positions are typically classified as agronomist (GS-471), biologist (GS-401), range conservationist (GS-454), forester (GS-460), horticulturist (GS-437), natural resource specialist (GS-401), resource conservationist (GS-401), biological science technician (GS-404), secretary (GS-318 or administrative assistant), or soil conservationist (GS-457). Qualification standards are provided in the Qualification Standards Handbook X-118, which is issued by the Office of Personnel Management. Positions are normally advertised as being interdisciplinary and applicants must meet one or more of the required series. Position Description and Knowledge, Skills, and Abilities evaluation factors for these positions are available from the NRCS State office Human Resources Manager. At a minimum, each Center should have a manager, an assistant manager or technical specialist, two field technicians, and a secretary/office assistant.

Personnel procedures - Procedures (i.e., performance work plans, training plans, position descriptions, etc.) for PM employees follow guidelines found in NRCS policy documents.

Employee Development - Employee development plans should be prepared for each employee at the PMC. These plans track employee development and establish training needs. Section 540.52 includes recommended training for positions at the PMC. Equal Employment Opportunity (EEO), Civil Rights, and computer security training are provided to each employee by the State office, in accordance with NRCS requirements.

(iii) Outreach Activities

PM staff will look for opportunities to provide services and products to customers who are traditionally underserved. This includes working with limited resource and minority farmers, developing partnerships with minority and small-scale seed growers, and making important documents available in multiple languages. NRCS outreach policy can be found in General Manual (GM) Title 230, Part 406.

The NRCS PMP is committed to assisting federally-recognized Tribes in a Government-to-Government relationship through consultative processes. Section 540.53 provides more details on working with tribes.

(iv) Communications and Marketing

PM staff will look for opportunities to increase the awareness of the program and its products, such as releases, technical documents, field plantings, and training. The end result of such activities is to be able to provide more assistance and information to a wider range of customers. Staff should work with their State Public Affairs Specialist (PAS) and the PMP PAS on communications activities when needed.

(v) Preparing Reports and Information

Each PMC will follow the guidelines outlined in Section 541.2 for the reporting of annual accomplishments and activities. Additional reports and information may be requested by the NPL and prepared on a periodic basis as outlined in Section 541.2(E).

Each PMC will prepare administrative information, such as an annual budget (Section 540.2(B)(i)), planning tools such as the PMC LRP (Section 540.2(C)(1)), the Business Plan (Section 540.2(C)(2)), and the Workload Analysis (Section 540.2(C)(3)) to support the operation of the PMC.

Many of the reports and planning required by PMCs are prepared on an annual basis on a recurring schedule. Section 540.54 provides a summary and schedule of the reports and information a PMC needs to prepare each year.

(vi) **Safety and Health Policy**

The NRCS PMP is conducted in conformity with GM Title 360, Part 420 and all applicable Federal and State public health and pollution control statutes and regulations. PMC Managers need to be knowledgeable about those regulations that affect their operations. Federal statutes and regulations that may influence PMCs are discussed in Section 540.55, which includes a brief description of each. Additional guidelines on PMC safety can be found in the PMC Safety Manual.

Each PMC must assign a Safety Officer/Coordinator to perform annual safety inspections as required by Federal and State regulations. Section 540.56 provides an outline for safety inspections at PMCs.

(vii) **Prescribed Burning at PMCs**

NRCS supports and encourages the use of prescribed burning within the context of Conservation Practice Prescribed Burning (Code 338), contained in the National Handbook of Conservation Practices. Prescribed burning is appropriate at PMCs where its application will assist in the development, evaluation, and production of conservation PM. At PMCs, burn plans as a management or study tool will be limited to no more than 10 acres per field. Employees at PMCs with the appropriate level of job approval authority and certification can conduct prescribed burns at PMCs for the development, evaluation, and production of conservation PM. The NRCS Prescribed Burning Policy is found in GM Title 190, Part 413. An example of a burn plan is found in Section 540.58.

(viii) **Pest Management Policy for PMCs**

PMCs will follow NRCS pest management policy as found in GM Title 190, Part 404. The highlights of this policy as it pertains to PMCs include:

- PMC staffs need to be certified and follow applicable State laws and regulations when applying pesticides at the PMC. Staff can apply pesticides off the PMC as long as it part of a PMC research study or planting which the landowner has agreed to and it is consistent with their certification issued by the State. PMC staff having a "Research and Demonstration" certification can test pesticides outside the label but these results cannot be reported and used for recommendations.
- PMCs can test pesticides and report on the results as long as the tests were within the limitations of the label. They can also report on what pesticides were used in a study or are used in an activity, such as glyphosate, for site preparation, as long as this is within the label.
- The reports generated by PMCs based on testing pesticides are considered as being based on reputable scientific research, provided they are peer-reviewed, and these reports are equivalent to reports from universities, Extension Services, or ARS. It is recommended that PMCs coordinate such studies and reports with others such as universities, Extension Services, or ARS.
- NRCS conservation planners can provide options on pesticide use based on reference materials from universities, Extension Services, ARS, and PMCs during the course of technical assistance to landowners.

C. **PMC Planning**

(1) **PMC Long Range Plan**

(i) The purpose of the PMC LRP is to identify, guide, and direct the operation toward solving high-priority resource problems identified throughout their service area. The PMC LRP is analogous to a Strategic Plan.

(ii) The PMC Manager is responsible for the preparation, review, and revision of the PMC LRP. The STC Advisory Committee reviews and approves the plan, and makes sure it is consistent with the needs and priorities identified in the State's PM LRP, NRCS National Objectives (Section 539.20) and/or PMP strategic objectives (Section 539.21). The PMC LRP should be reviewed annually and may require revision as State, regional, and national priorities change.

(iii) The PMC LRP will be filed as a supplement to the NPMM. An electronic copy of the PMC LRP will be sent to the NPL and to the NPMC for archiving.

(iv) An example of a PMC LRP is included in Section 540.51. The PMC LRP should include the

following items:

Introduction

- Purpose (objectives) of the plan.
- Those involved with the development of the plan.
- A description of general significant characteristics of the area served by the PMC such as climates, soils, and land uses. It should not include detailed descriptions of MLRAs or other published data but should refer to the documents containing this information (i.e., State PM LRP).
- A description of the process or procedure which was used to identify customers and prioritize identified needs.

Description of concerns/needs - This section may include:

- A comprehensive list and description of resource and non-resource related PM problems and needs. This list should identify and prioritize those problems and needs which will be addressed by the PMC. Resource problems and needs will be classified by NRCS Goals and Objectives (Section 539.20) and/or PMP strategic objectives (Section 539.21). Non-resource needs may include promotion of activities, training provided, and outreach efforts to socially disadvantaged groups and other underserved clientele.
- General discussion of knowledge for each identified need, particularly if current information is available to solve the need.
- Geographic location (include map(s) or MLRAs as appropriate), ecological setting (land use, site description, soils, cause and effect information, etc.), and area extent (approximate size of problem area in acres) of each identified need.
- Proposed action items identified to help solve the high priority resource and non-resource related needs.

Supporting documentation, attachments, and references

- Supporting documentation and references may include maps and the State PM LRP being referenced.
- Attachments may be used to eliminate frequent revision of the entire LRP.
- Other attachments may include activities pertinent to the operation of the PMC such as specific project activities, informational and training activities, and long range schedule for maintaining and updating facilities and equipment.

(2) Business Plans

- (i) The Business Plan (also known as a Plan of Operations) is a management tool used to direct the daily operation of the PMC. The Business Plan should be flexible to accommodate changes in operating plans or staffing levels. The Business Plan should be aligned to PMP, State office, and agency objectives and goals as much as possible.
- (ii) The PMC Manager, along with assistance from the PMC staff and PM Specialist, is responsible for preparing the Business Plan. The Business Plan is to be prepared by October 1 on a fiscal year basis, unless otherwise approved by the STC Advisory Committee.
- (iii) The Business Plan is to be reviewed and approved by the PMC Manager's supervisor. Copies should be sent to each STC Advisory Committee member.
- (iv) Business Plans will be filed as a supplement to the NPMM at the PMC. An electronic copy of the PMC Business Plan will be sent to the NPL and to the appropriate NTSC PM Specialist.
- (v) Major items used as references for development include the PMC Workload Analysis, the PMC LRP, PMC study plans, and long range schedule for updating and maintaining equipment and facilities. The Business Plan includes:

- All activities at the PMC, regardless of funding source.
- Action items by project and study plans.
- New and established plantings for seed and plant production.
- Planned technology development and transfer activities, including plant releases, written and oral information, and training (providing and receiving).
- Administrative and operational duties.
- Facility and equipment improvements, maintenance, and upgrades.
- Identification of activities which are funded by reimbursable or non-CO-46 funds.
- The staff member(s) responsible for identified action item and activity.
- When the action item or activity will begin and be completed.
- Anticipated product from scheduled action or activity.

(vi) An example of a Business Plan is found in Section 540.59. Business Plans should be reviewed by the PMC staff each quarter of the year to ensure that scheduled items are being completed. It may be useful for PMCs to update a copy of their performance index (Section 541.2(A)) for the year as a tracking tool of PMC accomplishments. All progress and final reports from PMC studies and activities contained in the Business Plan will be summarized annually and presented in the PMC Annual Technical Report (Section 541.2(D)).

(3) Workload Analysis

(i) The PMC Manager is to develop an annual Workload Analysis for the PMC. The Workload Analysis will be prepared on a fiscal year basis and be completed by October 1 of each year. The Workload Analysis of a PMC operation is a valuable management tool needed to determine staffing requirements to accomplish the PMC LRP and Business Plan. The Workload Analysis can also be used to identify future program staffing needs and act as an aid for budget analysis and planning. The Workload Analysis should include all activities at the PMC and identify those activities which are funded by reimbursable or non-CO-46 funds. Section 540.60 can be used as a guide for constructing a Workload Analysis.

(ii) The Workload Analysis will be filed as a supplement to the NPMM at the PMC. An electronic copy of the PMC Workload Analysis will be sent to the NPL and to the appropriate NTSC PM Specialist.

(4) Conservation Plan

Each PMC is to have a current conservation plan prepared according to the NRCS National Planning Procedures Handbook. The conservation plan should include past, current, and future land use information. NRCS field office personnel are to assist in preparing and implementing the plan. If land or facilities are cooperatively used, the conservation plan is to be jointly prepared by all parties concerned. The conservation plan is to be updated every 10 years or sooner if major changes in PMC land use are made. The PMC Manager is to make maximum use of the conservation plan.

D. Expectations, Evaluation, and Review of a PMC Program

(1) Expectations

All PMCs are expected to follow policies and guidelines presented in the NPMM. Each PMC is expected to maintain a balanced program of technology and release development and transfer over a 3-6 year time frame. The Center should focus on action items in the LRP and items noted in the performance index.

(2) Goals

Goals for PMCs, such as new releases, technical documents, and hours of training, will be requested by and provided to the NPL on an annual basis.

(3) Evaluation of Performance

All PMCs will report progress towards performance goals on at least a quarterly basis as determined by the NPL. This reporting is done through the POMS database (Section 541.1) and through the NRCS Performance Results System (Section 541.3). Evaluation factors for performance goals will include those items noted on the PM performance index (Section 541.11). Specifically, some of the evaluation factors are:

Technology product development and transfer completed by the PMC, such as written materials and presentations.

Number of new releases during the fiscal year.

Maintenance of seed and plants of released materials for distribution to commercial growers.

Evaluation of PM.

Number of field evaluation plantings.

Training provided.

Contact and assistance provided to NRCS field offices, partners, and other individuals.

(4) Reviews

(i) Each PMC will undergo a comprehensive program evaluation every 5-7 years.

(ii) The NPL may initiate a Program Review for a PMC and PM Specialist. Other NRCS administrative levels may initiate an Oversight and Evaluation Review, a Leadership Review, an Operations Review, a Civil Rights review, or a Functional Review for a PMC, PM Specialist, or State PM program as specified in GM Title 340, Part 413, Subpart E.

(iii) Guidelines for PM Program Reviews

Procedures for the review and the composition of the review committee will be determined at the time the review is initiated. The review committee may include the NPL, NTSC PM Specialist, and a member of the National PM Advisory Committee (typically a STC). The STC, SRC, PM Specialist, and PMC staff will be present for some or all of the review. It is the responsibility of the PMC Manager and PM Specialist to select 3 to 4 cooperators or partners to be available for interviews during the review.

Section 540.61 provides guidelines and criteria for conducting a Program Evaluation or other type of review for a PM program. This guide may be used for reviewing a PMC, PM Specialist, or a State PMP. Other items beyond the guide may be covered in a review. Review follow-up will include a summary of findings, commendations, recommendations, and agreed-to items prepared by the review committee.

540.3 Operation and Administration of the National Plant Materials Center

A. Purpose

The NPMC, located at Beltsville, Maryland, has responsibility for providing specialized support to the National PMP and limited support to the Mid-Atlantic region as a field PMC.

B. Operation

(1) **Operating Procedures** - The NPMC will follow the same guidelines for operation and administration as those outlined for PMCs in Section 540.2.

(2) **Personnel** - Staffing procedures generally are the same as those for field PMCs discussed in Section 540.2, with the exception that national specialists may be located at the NPMC as needed by the program.

(3) **Supervision** - The STC of Maryland is responsible for administrative supervision of the NPMC and for providing technical input for regional activities at the NPMC. The NPL is responsible for providing technical supervision of the NPMC for national activities at the Center, and providing input to the STC of Maryland for the NPMC Manager's annual performance evaluation.

C. **National Activities** - The NPMC carries out or assists with activities of the National PMP. These activities include:

(1) Providing assistance to the NPL in carrying out activities of national scope as requested.

(2) Working closely with the NRCS Conservation Communications Office and National Headquarters (NHQ), ensure coordination of PMP information into the national delivery system, and providing assistance to the PM Information Program including: preparation of national PM newsletters, preparation and maintenance of national display and presentation items (such as slides and electronic images), and assisting other PMCs with desktop publishing and printing of written technology transfer products.

(3) Soliciting published information from PMCs and PM Specialists, providing long-term storage of paper and electronic documents at the NPMC, and preparing documents for inclusion on the PM Web site.

(4) Coordination of national PM germplasm efforts including: plant exchange outside of NRCS on a national and international basis, assisting PMCs with clearing improved plants for release, coordination with the ARS-National Plant Germplasm System, and coordination with the Plant Protection and Quarantine Office, APHIS, for import and export of plants.

(5) Maintaining the PM releases database and permanent release files to provide current information for reports, and the annual publication, "Improved Plant Materials Released by NRCS and Cooperators."

(6) Coordinate development and maintenance of PM databases, development of the PM Web

site, assisting with national PM training, and coordination of activities with the NRCS National Plant Data Center.

D. Regional Activities - Provides PM support in the Mid-Atlantic region in areas of high priority. In carrying out regional activities, the NPMC will follow guidelines established for PMCs in Section 540.2.

Subpart B - Product Development

540.10 General

Projects and studies are the foundation of plant science technology development in the Plant Materials Program (PMP). Projects are intended to address important NRCS conservation issues and are developed using goals identified in the USDA and NRCS Strategic Plan (Section 539.20) and in the PMP Strategic Plan (Section 539.21). Studies are established within projects to meet specific technology objectives and deliver relevant products. Studies, and the technology products from them, are divided into three general types according to how they are conducted. They include Plant Selection Studies (e.g., cultivar and other releases), Field-based Technology Studies (e.g., stand establishment or plant management), and Information-based Technology (e.g., summary of existing knowledge). Technology products should be based on goals identified in national project statements and relevant to NRCS field office needs. The typical process for Product Development is outlined in Section 540.63.

540.11 National Projects

A. General

Projects function to identify topics of work carried out by the PMP. They are national in scope and are used to address NRCS conservation needs. Projects are an umbrella for studies carried out by one or more PMCs. An appropriate project must be identified and associated with each PMC study before the PMC begins work on the study. Not all national projects pertain to each region of the country or the activities of each PMC.

B. Project Statements

Each national project is outlined by a national project statement. The project statement covers a broad topic area which addresses a conservation need. There are typically many studies which relate to each project. Projects help with the coordination of work, thus avoiding duplication of studies among PMCs. The content of a project statement is determined by the nature and magnitude of the problem, extent of prior work, and availability of information about the problem.

C. Development of a Project Statement

Projects and project statements are identified and developed on the national level, with input from the National Program Leader (NPL), PM Information Coordinator, National Technology Support Center (NTSC) PM Specialists, PM Specialists, and Plant Materials Center (PMC) Managers. Projects are broad in scope, and the majority of studies will fall under one or more national projects. If the study does not fall under a national project, then the PMC Manager, PM Specialists, or NTSC PM Specialists will contact the NPL to discuss adding a new national project or modifying an existing project. All national projects and project statements must be approved by the NPL.

D. Contents of a Project Statement

A complete sample project statement is found in Section 540.64. Each project statement will contain:

- (1) Project Title - a brief title statement that best describes the project.
- (2) Project Code - this will be a standardized identifier for the project. Project codes will be related to PMC study identification codes.
- (3) Problem Statement - used to identify land use, resource concern, conservation practices affected, and the relative magnitude (e.g., extent and severity) of the problem. Generally, this will identify how the project will help solve the problem identified in the title and will include anticipated products.
- (4) Project Classification - classification of the project based on SWAPA designation (soil, water, air, plants, and animals), conservation practice, etc., and on a lookup table in the Plant Materials Operation and Management System (POMS).
- (5) Keywords - important words that may be used in a search of the database.
- (6) Approval - all national project statements are approved by NPL.

E. Filing Project Statements

A list of national projects is included in Section 540.65. National project statements are also located in POMS (see Section 541.1) and will be found on the PMP Web site.

540.12 Studies

A. General

Studies are designed to guide the activities of a PMC or PM Specialist. They are prepared to address the needs identified in the State and PMC LRP, or by national initiatives or areas of emphasis. Studies may cover the activities of one or more PMCs or PM Specialists. Coordination required between PMCs and PM Specialist is the responsibility of the staffs involved and the NTSC PM Specialist. Plans will be prepared for all PM studies.

B. Study Plans

The study plan provides the details required to carry out the field, greenhouse, or laboratory work required to address the problem. Study plans will be prepared for field-based technology studies and plant selection Studies. Information-based technology may require development of a study plan. PMC Managers and/or PM Specialists develop study plans. Study plans are to be reported and developed in POMS (see Section 541.1), and may be modified as needed to achieve objectives.

C. Designating Study Plans

(1) Study plans are designated by an identification code used to track the study. The study plan number follows a defined format. This format is as follows: "MTPMC-P-0911" or "WY-F-0902," where:

- (i) MT = PMC or State Abbreviation (ET = East Texas, etc.)
- (ii) PMC or PMS = Plant Materials Center or Plant Materials Specialist
- (iii) P, T or F = Type Code
- (iv) 09 = year study was initiated
- (v) 11 = Consecutive Number assigned by PMC or PM Specialist.

(2) Specific details and codes for assigning study numbers are found in Section 540.66.

(3) A study may have sub-studies, field plantings, or conservation field trials associated with it. In these cases, related studies may have their own study plan and study number assigned.

When this new study information is entered into the POMS database, the "main" study number will be recorded in the appropriate field to indicate related studies.

D. Development of the Study Plan

(1) The PMC or PM Specialist takes the leadership for developing study plans. Plans may include input from other staff members or disciplines. Study plans are reported in POMS (see Section 541.1). This will allow consolidation of information at the national level.

(2) Study plans will be reviewed by others for technical merit and to ensure the plan meets the need of the resource concern being addressed and a useful product is developed for the field. At a minimum, study plans will be reviewed by the PMC Manager, PM Specialist, appropriate State office technical specialists, the NTSC PM Specialist, or another technical specialist. Additional reviewers might include other PMCs having similar studies, State office specialists, field office staff, Agricultural Research Service (ARS) scientists, or university and Agricultural Experiment Station researchers.

E. Content of the Study Plan

A sample study plan is found in Section 540.67. Study plans have the following elements:

- (i) **Title** - use a title specific to the study.
- (ii) **Study ID Code** - follow guidelines in Section 540.12(C).
- (iii) **Basic Information** - included in this is study leader, relevant project code(s), and study start and end dates.
- (iv) **Study status** - status of study (i.e., on hold, active, inactive, completed.)
- (v) **Practice/Resources** - select the Land Use(s), Vegetative Practice(s), Resource Concern(s), and National Objective(s) being addressed by the study.
- (vi) **Long Range Plans** - identify concern(s) within the State and PMC LRPs that are addressed by this study.
- (vii) **Study objective** - this is a brief text description that specifically identifies the objectives of the study.
- (viii) **Review of literature on prior research** - a thorough review of all previous work, including current and previous activities on a study, is important at the time a study plan is prepared. The literature search is to be completed before the remainder of the study plan is started. Resources that may be used in a literature search are listed in Section 540.68.
- (ix) **Methods and materials** - where, when, and how the work is to be done; featured materials, including standards; plot size and type; treatments to be used; data to be obtained; statistical procedures to be used; personnel who are to do the work; and an estimate of staff-day requirements. It is essential the technical and statistical validity of the methodology for each study be well developed before initiating the study.
- (x) **Species used** - a list of species and cultivars/releases (if applicable) which are used in the study.
- (xi) **Keywords** - important words that may be used in a search.
- (xii) **Cooperators** - list of other PMCs, PM Specialists, State office technical specialists, agencies, or individuals that will be involved with the study.
- (xiii) **Study design** - identifies the type of experimental design and describes the treatments to be evaluated by the study.
- (xiv) **Final evaluation** - identifies Field Plantings (Section 540.14(F) and Conservation Field Trials (Section 540.14(G) which may be necessary to complete the evaluation process.
- (xv) **Technology transfer products** - final products may include one or several formats. Section 540.69 lists types of technology transfer products.
- (xvi) **Approval** - study plans and supplements are to be reviewed by others as indicated in Section 540.12(D)(2) to ensure technical adequacy. Signatures indicating review, concurrence, and acceptance will be included on the study plan prior to beginning a new study. The State Conservationist's PM Advisory Committee reviews the plan for administrative items such as

adequacy of resources to carry out the work.

F. Filing Study Plans

Study plans are filed at the originating PMC. Information on studies is also pulled from the POMS database and posted to the PMP Web site to highlight PMC research activities. It is the responsibility of each PMC to update information in POMS as studies are added or completed.

G. Study Summaries

All progress, activities, and conclusions from ongoing and completed Field-based Technology studies, Plant Selection studies, and Information-based Technology will be summarized annually to be filed in the study folder and included in the PMC Annual Technical Report (Section 541.2(D)).

540.13 Technology Development and Transfer

The development and transfer of written and/or oral technology is an integral part of the PMP. Technology development and transfer is accomplished through the use of Field-based Technology or Information-based Technology studies. Field-based Technology studies evaluate plant management techniques used in conservation applications. Information-based Technology involves the consolidation of existing information into a usable format or transferring the results of Field-based Technology studies into a format the field can use. Examples of products that may result from Field-based and Information-based Technology studies are included in Section 540.69.

540.14 Field-based Technology Studies

A. General

Field-based Technology Studies are those activities which involve active studies at a PMC or are conducted by a PM Specialist. Examples of Field-based Technology Studies include the development of planting methods for streambank soil bioengineering, time of seeding studies for late season cover crops, and an evaluation of improved PM for use in windbreaks or air quality control studies. Study plans must be prepared as described in Section 540.12 for all Field-based Technology Studies, and be approved by the State Conservationist's PM Advisory Committee (or equivalent) prior to starting a study. A basic outline for the process of Technology Development is found in Section 540.63. A Technology Development checklist, which may be used as a guide for Field-based Technology Studies, is found in Section 540.62.

B. Assembly of Materials for Field-based Technology Studies

(1) Materials for Field-based Technology Studies may include plant materials, chemicals, propagation supplies, nursery-type supplies, or other equipment necessary to complete the study objective. Standards for comparison are to be included in studies as appropriate.

(2) Required materials may come from any number of sources, depending on the type. The cost of materials should be considered in preparing the PMC budget. Plant materials may be obtained as described in Section 540.32(A)(2). The Internet may be a useful resource for locating difficult-to-find supplies.

C. Installing Field-based Technology Studies

Field-based Technology Studies will be installed and conducted according to the study plan.

D. Evaluation of Field-based Technology Studies

Evaluation is the process of recording and analyzing plant response to treatments under test conditions. The objective is to determine quantitatively and qualitatively how promising new cultural or management techniques may be better than the standards used. Most study evaluations are completed at the PMC and are called "on-center evaluations." The following should be considered when conducting evaluations:

(i) Performance is to be documented as required for the development of applied plant technologies using statistically acceptable methods and procedures that will ensure confidence in, and reliability of, the results.

(ii) True quantitative data, e.g., days to germination, plant height, weight of biomass produced, will be collected whenever possible. The use of relative rating systems, e.g., 1-9 scale, is discouraged.

(iii) Documentation is to be standardized for ease of recording and interpretation and to meet storage and retrieval requirements of automated data processing throughout the United States.

(iv) The data collected each year will be analyzed using Statistix 8 or a similar statistical package.

E. Off-center Evaluations

(1) Off-center evaluations are plantings and evaluations used by the PMC or sometimes the PM Specialist as part of a study to evaluate plant releases or technology off the Center. Typically they consist of plant selections, cultural or management studies established at locations that represent a land resource area, or a site having soil, climate, and other conditions not

represented at the PMC. Although initial testing is sometimes conducted off the PMC, these sites generally are used for advanced testing.

(2) All off-center evaluations are to be coordinated by the PMC responsible for the State where the planting is made. The PMC is responsible for conducting evaluations or arranging for evaluations to be done by the PM Specialist, local field or conservation district office, or other partner.

(3) The State Conservationist is to be assured through a cooperative agreement, memoranda of understanding, or exchange of correspondence with the land owner that there is mutual agreement between land owners, NRCS, and/or the conservation district regarding use of, access to, and tenure of the planting. The level of documentation required may be dependent on other existing agreements or who the land owner is. If appropriate, any such arrangements will include an acknowledgment by the PMC to the landowners that the planting does not pose an environmental risk or threaten the health or well being of wild or domestic animals or ecosystems. The PMC Manager or PM Specialist will also determine if necessary funds, equipment, and manpower are available. Factors such as location, workload, and available facilities are to be considered in determining who is to have primary responsibility for each planting.

F. Field Plantings

(1) Field plantings are conducted as final evaluations in a study. The purpose of field plantings in Field-based Technology Studies is to assess the conservation potential of the new or developing technology under actual use conditions. Field plantings evaluate new plants or new plant technology under a variety of soil, climatic, and land uses. Study objectives will determine the need and location of field plantings. Field plantings generally are the responsibility of the PM Specialist and coordinated with the PMC Manager.

(2) The establishment of field plantings will be addressed in a LRP for field plantings. The purpose of the LRP is to provide an orderly evaluation process of field plantings for each specific conservation use for which the technology has potential application. Study objectives will provide guidance in the development of the LRP for field plantings. The LRP will address field planting numbers, location, establishment and management techniques, timing and duration of evaluations, standards for comparison, evaluation responsibility, and data collection and analysis. The size of the planting should be such that it permits normal use and management.

(3) The LRP will include the preparation of written products to adequately describe and convey new technology. These written products may include Plant Guides, Plant Fact Sheets, Technical Notes, or information brochures for the technology being evaluated in the field plantings. The written information is to include a description of the technology and how it will support appropriate conservation practice standards and specifications, potential uses, potential areas of adaptation, maintenance requirements, and/or detailed instructions on the procedures. See Section 540.16 for more information on preparing these and other types of written products.

(4) Additional field plantings (other than those specified in the LRP) may be requested at the local level by completing a planting plan (Form NRCS-ECS-9, Section 540.70) or other appropriate worksheet and submitting the request through the State Resource Conservationist (SRC) (or equivalent). All additional field planting requests will be considered by the SRC and PM Specialist/PMC Manager based upon the usefulness of the planting and availability of material.

(5) Each field planting will be identified by a study number according to the format described in Sections 540.12(C) and 540.66. All field plantings should use Type Code "F" to designate a field planting.

(6) A register of field plantings will be developed and maintained in the POMS database. Each planting will be classified as active, inactive, or closed. An active field planting is one that is expected to provide additional trial information and for which periodic evaluations are to be continued. An inactive field planting will not require periodic evaluations. Because of their locations, demonstrational value, or for other reasons, records relating to these plantings will be maintained indefinitely in the study folder. Follow-up evaluations may be made as determined necessary. If a field planting has been destroyed or has no evaluation or demonstrational value, records pertaining to it are to be closed and the trial is considered closed.

(7) Form NRCS-ECS-14 (Section 540.71) may be used by the PMC or PM Specialist to document assistance provided through the field planting process. Form NRCS-ECS-600 (Section 540.72) may be used for documenting conditions at the time of planting.

G. Conservation Field Trials

(1) Conservation Field Trials (CFT) are identified in GM 450-403 as a field study designed to examine the adequacy or adaptability of a conservation practice, system, procedure, or material. It may also be used to introduce promising conservation practices or systems into areas where they are not now accepted as a solution to a local soil, water, or related resource problem or condition. These trials can be useful to transfer technology, update the local Technical Guide, or to demonstrate a need for formal research.

(2) The approach is usually interdisciplinary, involving multiple agencies. The PMP may use

CFTs to develop or test new technology, evaluate releases, or promote PM products. These trials may be coordinated by the PM Specialist or by the PMC. They may involve a study or be established based on a local need.

(3) Each CFT will be identified by a study number, according to the format described in Sections 540.12(C) and 540.66. All field plantings, including CFTs, should use Type Code "F" to designate a field planting. Each CFT may be designated by a new and unique number, but may be linked back to a larger study or previous study through the POMS database.

H. Preparing Summaries

The data from every active study will be summarized each year and presented in the PMC Annual Technical Report (see Section 541.2(D)). When a study is completed, the data from all years will be summarized and analyzed. The results and conclusions will be reported in the PMC Annual Technical Report and other forms of written reports, including progress reports and Technical Notes.

I. Selection

(1) Selection is choosing the most desirable technique(s) from the study or the most desirable technique for a particular conservation use. Personnel responsible for conducting the evaluation are to select promising applied plant technologies based on observations and quantitative and qualitative data.

(2) Criteria for selection:

- (i) The selected applied plant technology must be practical and economical for the intended conservation use.
- (ii) If no standard is available, selection is to be based on the performance of the new technology in relation to the performance of the technologies being tested in the same group.
- (iii) Selection criteria are to be documented in the study plan.
- (iv) In selecting applied plant technologies for subsequent incorporation into technical guides, consideration is to be given to the practical use of the technology.
- (v) Appropriate steps are to be taken during evaluations to determine that the new technology poses no hazards or threat to humans or the environment. See Section 540.33(A) (3) for details on environmental considerations.

540.15 Information-based Technology

A. General

Information-based Technology includes those activities which do not involve an active study at a PMC. The purpose of Information-based Technology development is to address priority technological voids independent of field work at PMCs. Information-based Technology development usually involves the consolidation of existing information into a usable format. A Technology development checklist, which may be used as a guide for Information-based Technology activities, is found in Section 540.62.

B. Sources of Information-based Technology

The type of Information-based Technology developed will depend on the nature of the need being addressed. Sources of information to develop Information-based Technology products may include:

- (i) Existing material, either by a new summarization or reprinting existing material that still has application, but is in short supply;
- (ii) Revision of older material based on recently developed technology;
- (iii) New information/work that has been recently developed or is currently being developed;
- (iv) "Personal" experience and knowledge on a specific subject;
- (v) Providing training to NRCS and non-NRCS personnel; and/or
- (vi) Addressing a new resource or species of concern.

C. Product Development

The product of Information-based Technology development may be written or oral and could take one of many forms. Types of technology products are found in Section 540.69. When developing an Information-based Technology product, an outline may be very beneficial to assist the PMC or PM Specialist. The outline may include:

- (i) **Title** - A proposed title or working title for the activity.
- (ii) **Basic Information** - Activity leader, cooperators, start and end dates, and timeline for development.
- (iii) **Need** - Identify the specific need which is being met by undertaking this activity and the target audience.
- (iv) **Objective/Description** - This is a brief description of the activity and the purpose it will serve.
- (v) **Literature Search** - The current status of knowledge and products available should be assessed through a literature search. Resources for conducting a literature search are described in Section 540.68.
- (vi) **Materials** - Identify what sources the information is to be acquired from.
- (vii) **Products** - Identify the type of technology product (see Section 540.69) which will result

from this activity and the intended distribution. Costs (i.e., printing and distribution) should be considered and funds allocated for product delivery.

(viii) **Copyright** - Copyrighted material needs proper clearances and permission if information or artwork is extracted from copyrighted sources; this should be considered during preparation.

(ix) **Review and Approval** - Cooperators and peers will review information for technical accuracy. NRCS policy will be followed for approval.

(x) **Credit** - Attention should be given to ensure that NRCS and the PMP are given credit for involvement with the product development.

(xi) **Performance** - Ensure products are captured under the appropriate performance goal and management system.

(xii) **Report accomplishments** in POMS.

540.16 Final Preparation of Field-based and Information-based Technology Products

A. Types of Technology Products

The products of Field-based and Information-based Technology development may be either written or oral, and the product can take one of many forms. Types of technology products are found in Section 540.69.

B. Preparing Technology Products

Product quality is of the utmost importance. The following items should be considered when preparing technology products:

(i) All products developed by the PMP must provide full and appropriate credit, particularly where multiple partners are involved with product development. A full citation for the document, especially for technical documents which might be referenced, should be included towards the end of the document so that it can be cited, and the originating authors and office are identified.

(ii) All written products must include the name of the PMC or PM Specialist office, authors and contact information, and the month and year issued.

(iii) All written products must include the USDA-NRCS logo. Proper Equal Employment Opportunity/Civil Rights statements should be included, according to USDA regulations for printed material.

(iv) Products must be scientifically sound, professionally presented, and must satisfy customer expectations.

(v) "Personal" information is acceptable, provided the source has recognized experience and knowledge on the subject.

(vi) The use of plant names in all PM publications will include both the full Latin binomial or trinomial and the common name the first time a plant is referred to in the abstract and text (see Section 542.2 on plant nomenclature). Plant names will conform to the PLANTS database and synonyms listed as needed.

(vii) When using measurements, the most appropriate measure, either English or metric, should be used. If metric is used, also include the English measurement if appropriate. For example, plant height might be reported as "meters (feet)," while stem diameter might be reported as 3 mm with no English conversion.

(viii) Copyrighted material needs proper clearances/permission if information is extracted from copyrighted sources.

(ix) The State Public Affairs Specialist (PAS) should be involved in the final development of printed materials, even if the product will be printed through non-USDA sources.

(x) The format used should present material in an attractive way that can achieve a positive perception of the PMP and/or follows predetermined format guidelines. Format will be determined by the nature of the product developed. Technical Notes and Plant Fact Sheets/Plant Guides may have specific guidelines to follow.

Technical Notes - A Technical Note is a document issued by a State office, regional office, or National Headquarters. A sample Technical Note is found in Section 540.75. Technical Notes are issued, distributed, and filed in accordance with the NRCS directives system, though the format of the Technical Note may vary with the content. Technical Notes are most useful for ensuring that important information is distributed and filed properly by the end user, most typically the NRCS field office. Many States have a set of Technical Notes for each discipline (e.g., PM, Biology, Agronomy, Range, etc.). While each State office may specify the distribution and filing of Technical Notes differently, there is a common method for the preparation and handling of PM Technical Notes. This method is summarized below.

- **Preparation:** PM Technical Notes are typically written by a PM Specialist or PMC staff member. There are instances, though, when materials prepared by another author, e.g., cooperator or NRCS Field office staff, warrants issuing as a Technical Note. All written information which directly supports the Field Office Technical Guide (FOTG) or which may be of use to the field, should be considered for issuing as a Technical Note so that its importance to the field is conveyed and

filed properly by the Field office. Technical Notes should receive a number (i.e., Technical Note #32) so that they can be referenced in an index or in other materials. All Technical Notes developed by PM staff should clearly identify the office(s) and/or author(s) so that recognition for the Technical Note is given to the PMP. The content of Technical Notes can vary considerably. It is up to the author(s) to determine the most appropriate format for the information they want

to distribute. The only item that will be consistent is the cover letter with distribution and filing instructions.

- Filing: Technical Notes are usually filed in a discipline handbook (e.g. the State Agronomy Handbook), with the FOTG, or in a 3-ring binder containing all State Technical Notes. The Technical Note should be filed by the receiving office according to the instructions in the distribution letter.
- Updating Technical Notes: Occasionally, it may be necessary to update the information found in Technical Notes. The updated Technical Note should retain the number of the old Technical Note. Instructions should be included in the distribution letter to discard the old Technical Note and insert the new one in its place.

Plant Fact Sheets and Plant Guides - Plant Fact Sheets and Guides are a cooperative effort between the PMP and the National Plant Data Center, with input from other cooperating organizations. Coordination is provided by the NPMC. A sample Plant Fact Sheet is found in Section 540.76 and a sample Plant Guide in Section 540.77. Details on creating these documents can be found on the PM web site or SharePoint site. Plant Fact Sheets are one page (front and back) species overviews, and include color photos, a species description, and information on establishment, management, and improved materials. Plant Fact Sheets are intended for the landowner or layperson and should avoid the use of highly scientific terms or descriptions. Plant Guides contain more detailed information of everything on the Plant Fact Sheet plus information on propagation and production, cultural significance, and detailed descriptions of improved materials. They can be several pages long and must have references throughout the body of the Plant Guide, with a complete reference section at the end of the document. Plant Guides are intended for conservation professionals and are more scientific or technical. For examples of how to properly reference various types of technical documents (articles, books, and other manuscripts) refer to guidelines on the PM web site or SharePoint site. Before creating a new document for a species, be sure to check the PLANTS Web site (<http://plants.usda.gov/java/factSheet>) and contact the NPMC to see if a document already exists. Where new information can be provided to enhance a current fact sheet or guide, contact the NPMC.

(xi) For larger publications, such as major publications, books, and symposium proceedings, the authors may want to consider applying for a Library of Congress number. The NPMC should be contacted for assistance with this.

C. Review of Technology Products

- (1) Development of technical information is an important component of the PMP, and PMC/PM Specialist scientists are encouraged to develop technical documents. To ensure technical documents are sound, high quality, and pertinent to the subject matter, a thorough peer review process will take place before being published.
- (2) PMC staff and PM Specialists will follow NRCS policy for manuscript review, which can be found in GM Title 260, Public Information, Part 400, Public Information Policy, National Instruction 260-308.4. State offices follow this policy for manuscript review and clearance of in-service and outside publications, including Technical Notes, Standards and Specifications, professional papers published in scientific journals, symposia, periodicals, fact sheets, plant guides, video and audio scripts, etc. Reviewers of PMP-developed documents may consist of in-State reviewers and outside agency partners who are cooperators and/or familiar with the subject matter and technology.
- (3) In addition, the appropriate NTSC PM Specialist will review all major documents. As a PMC/PM Specialist develops a technical document, they will submit the draft document to their NTSC PM Specialist. For more extensive or comprehensive documents, the NTSC PM Specialist may send to additional reviewers and will consolidate all feedback prior to returning comments to the originating PMC or PM Specialist.
- (4) A review will be considered successful and complete after all the NTCS PM Specialist comments are adopted or addressed.
- (5) Final copies of all major technical documents will be provided to the NTCS PM Specialist for their records, recorded in the POMS database, and an electronic copy sent to the PM Webmaster.

D. Distribution of Final Products

The type of product will determine the method and scope of distribution. The author has the

responsibility to ensure that products are properly distributed to the customer in a timely and efficient manner. The author should work closely with their PAS for guidelines on final preparation, printing, and distribution of written products. The NPMC is an alternate source of information on printing and distribution. The cost of printing and distributing written materials should be considered.

E. Preservation and Archiving

An electronic file of all written products will be sent to the PM Webmaster for inclusion on the PMP Web site for filing in the program archives. Paper copies of documents will be forwarded to the NPMC only if an electronic copy is not available or the document was printed in a non-standard format. The NPMC will forward written materials to the National Agricultural Library. In addition, the PMC or PM Specialist should save written and electronic copies of all written products within their paper and electronic file systems.

F. Documentation

The PMC Manager and/or PM Specialist have the responsibility to record new documents on a quarterly basis in the POMS database and in the PRS, as applicable. All Field-based Technology Studies and Information-based Technology developed will be summarized annually in the PMC Annual Technical Report (see Section 541.2(D)).

540.17 Transferring and Marketing Technology Products

Marketing is extremely important in the delivery of products from the PMP. There are a number of ways to market technologies and products, including:

- (1) **Oral Communication** - Oral communication is probably the most widely used method of marketing the PMP and PM products. Training, presentations, tours, and one-on-one contacts should all be looked upon as ways to improve the visibility of the PMP. Oral communication should be technically sound and presented in a professional manner.
- (2) **Printed Materials** - Printed materials provide an in-hand copy of information to the customer. Printed materials are easy to access and share with others. It may be necessary to identify how the printed materials should be filed or used by the recipient. Consideration should be given to distribution of materials both within and outside of NRCS. The cost of printing materials may determine the extent to which this method is used. Printed materials should clearly identify NRCS, the PMP, and the originating PMC or PM Specialist office.
- (3) **Electronic Media** - Distribution of written products electronically through the Internet or on disk or CD is relatively inexpensive. Electronic media provides customers broader access to PM products. The NPMC should be contacted as needed for guidelines on the preparation of electronic media.
- (4) **Special Demonstration Plantings** - Special plantings are designed to promote the use and/or acceptance of a plant release or developed technology. If special plantings are needed or desired, specific information such as number, location, purpose, amount of plant material needed, etc., should be addressed in the study plan or PMC Business Plan as applicable.
- (5) **Off-center evaluations** - Off-center evaluations are an excellent way to market new technology or improved plants. More information on off-center evaluations is provided in Section 540.14(E).
- (6) **Conservation Field Trials** - The PMP may use CFTs to develop new technology, evaluate releases, or promote PM products. Section 540.14(G) describes CFTs in more detail.
- (7) **Field Days or Tours** - The PMP may use field days or tours to help market new products or increase awareness of the PMP and PMC activities.

Subpart C - Plant Selection

540.30 General

The collection, assembly, selection, and release of new plant varieties and/or germplasm are integral parts of the PMP. The selection and release of new plant germplasm is accomplished through the use of plant selection studies. Plant selection studies use observational and/or quantitative evaluations, along with plant breeding methods, to identify and/or select improved materials. In all cases, new conservation plants released by the PMP must have specific purposes and/or traits to address a specific natural resource issue or solve a particular conservation problem. Plant selection activities are based on study plans as described in Section 540.12. The typical process for plant selection is outlined in Section 540.63. A checklist, which may be used as a guide for tracking the progress of plant selection studies, is found in Section 540.78.

540.31 Coordination of Plant Selection and Release

The PMP relies on the cooperation, standards, and regulations of other State and Federal agencies during the development of plant releases.

(1) Agreement of Experiment Station Committee on Organization and Policy (ESCOP)

The ESCOP policy statement for developing and releasing improved plants was revised in November 1988 and reviewed by ARS and NRCS. The policy statement contains responsibilities and guidelines for the development, release, and multiplication of publicly developed germplasm and varieties of seed-propagated crops. A copy of the ESCOP policy statement is provided in Section 540.79. The PMP follows these guidelines in the testing and release of seed-propagated plant materials. NRCS also develops many releases cooperatively with State Agricultural Experiment Stations and other agencies.

(2) Federal Seed Act

Broad guidelines for the production of crops, such as isolation distances, seed testing, purity, and germination requirements are established by the Federal Seed Act and monitored by USDA's Agricultural Marketing Service (AMS). The PMP follows the guidelines of the Federal Seed Act for the species it produces. Note that not all species selected by the PMP are included in the Federal Seed Act. The National Plant Materials Center (NPMC) will retain copies of Federal Seed Act and AMS regulations.

(3) Association of Official Seed Certifying Agencies (AOSCA)

AOSCA develops the basic requirements for certified production of many crops in the United States, Canada, and several other countries. AOSCA also defines the various classes of releases, requirements for each class of release, and labeling requirements. These standards are found in the Certification Handbook published by AOSCA and in the Federal Seed Act. The NPMC will retain reference copies of these documents. The PMP follows these guidelines for release types and certification. State certification standards are individually established within these guidelines. Each PMC should maintain manuals of the seed certification standard.

(4) State Seed Certification Agencies

The PMP cooperates with the State Seed Certification Agency, Crop Improvement Association, or other official State agencies in establishing standards for new crops and meeting State and Federal requirements in the production and handling of cultivar and pre-varietal germplasm seed classes with respect to: source of seed stocks, genetic purity, isolation requirements, roguing other crop or weed contaminants, field inspection, seed cleaning, and seed quality, purity, and germination. Though the internal organization of seed certifying agencies may differ from State to State, all regulations must comply with AOSCA and Federal Seed Act genetic requirements and standards.

540.32 Assembly and Accessioning

A. Assembly of Plants for Potential Release

(1) General

Plant materials are assembled from domestic and foreign sources for studies. Preference is given to finding a conservation solution using native plant species, whenever possible, based on the intended use of the release. "Native" for the PMP is a plant species that occurs naturally within North America, including the United States, Mexico, Canada, Puerto Rico, the U.S. Virgin Islands, and the Hawaiian Islands in a particular region, State, ecosystem, and habitat without direct or indirect human actions. Germplasm assemblies are planned to satisfy a specific objective(s) indicated in a study plan.

(2) Sources of Material - The following sources may be utilized when assembling plants for release:

- (i) Seed and Plant Collections - Collections should be made from the area encompassed by the identified problems and/or objectives outlined in the study plan. Where the identified

problem encompasses more than one PMC service area, PMCs should coordinate plant collection efforts. Plant and seed collections may be coordinated with field offices and cooperators.

The number of collections will depend on the purpose of the study. Vegetative samples require higher sample numbers than seed collections to capture the diversity of sampling population. With seed, be sure to collect on enough dates to avoid selection against either early or late maturing genotypes. In most cases, collections should be made from 25 or more sites (populations) and from 30-100 different plants at each site. It is important to ensure that a representative sample of the population has been collected and that there is sufficient data to substantiate decisions on the recommended selections. In addition to the sampling size, understanding the breeding system, seed dispersal, successional stage, and isolation requirements are all important when it comes to collections and how they are handled. Determining genetic adaptability, ploidy level, and outbreeding depression all need to be considered before a release is made.

Appropriate approvals should be obtained as needed when working with non-PM staff. Collection information should be recorded on Form NRCS-ECS-580 (Plant Collection Information, Section 540.80) or Forms NRCS-ECS-580-a or NRCS-ECS-580-c (seed collection envelopes). Electronic copies of NRCS-ECS-580 are available on the PM Web site and seed collection envelopes can be ordered from the NRCS LandCare Web site ([NRCS Publications](#)).

(ii) **National Plant Germplasm System (NPGS)** - The NPGS, operated by ARS, is an excellent source of both domestic and foreign collected materials. The NPGS includes collections maintained at ARS Plant Introduction (PI) stations and the ARS National Seed Storage Laboratory (NSSL). Information on plant collections may be accessed through the Germplasm Resources Information Network (GRIN) database via the Internet. Materials in the NPGS may be obtained through the GRIN database and/or by contacting an ARS PI station and/or the NSSL directly. The NPMC will assist PMCs with obtaining these materials if necessary.

(iii) **Foreign Sources** - Plant materials may be obtained from foreign sources, as necessary, to solve a specific conservation problem. The NPMC will assist with locating sources of plant materials and coordinating the import process. For the NPMC to complete this effectively, PMCs must provide them with ample lead time to bring the assembly together to meet the PMC study plan timetable. This may require 1-2 years, depending on the source of foreign germplasm. In all circumstances, the PMC Manager should discuss foreign germplasm needs with the NPMC Manager to determine the most feasible method of obtaining materials and the timeframe needed to complete the acquisition.

(iv) **Other Sources** - Other State and Federal agencies frequently supply materials for specific evaluation purposes and as standards for comparison. Commercial seed dealers and nurserymen, privately endowed foundations, or district seed-increase growers are sources of many released varieties and new strains. PMCs should work directly with these sources to obtain these seed or plants. Plant materials may be purchased from commercial sources as needed for standards of comparison, testing, and demonstrations.

(3) Size of Assemblies

An assembly should ideally contain a representative sampling of populations from throughout the range of a native species or the area the release is intended to be used in. An assembly of introduced species should contain as large a number of accessions as is available in this country. There may be instances where additional field collections from foreign sources may be required in order to have an adequate assembly. All released varieties with known adaptation should be included in evaluations for comparison.

B. Assigning Accession Numbers

(1) An accession is plant material (plant, seed, or vegetative part) collected and assigned a number to maintain its identity during evaluation, increase, and storage. NRCS accession numbers are also known as 9-million numbers (i.e., 9012345). Blocks of accession numbers are requested from the NPMC. The 9-million number assigned to an accession is to be used in referring to that accession throughout the evaluation process. Other numbers, such as individual PMC control numbers, are not permitted. Old PMC control numbers which are still being used should be replaced with 9-million numbers.

(2) PMCs will assign NRCS accession numbers to:

- (i) New collections from native or foreign sources;
- (ii) Unnamed non-varietal materials obtained from commercial sources;
- (iii) Accessions which are combined (i.e., composited) during the plant selection process; or
- (iv) One or more plants which are selected from an original accession during the plant selection process.

(3) PMCs shall not assign NRCS accession numbers to:

- (i) Accessions received from another PMC, which already have an NRCS accession number;
- (ii) Materials which already have a PI number; or
- (iii) Named materials received from commercial sources. These materials will be assigned an accession by the NPMC to avoid assigning two different numbers to the same material. The NPMC should be contacted to obtain accession numbers for these materials.

(4) Use the NRCS accession number (9-million) as the primary number for an accession. The only exception is when the accession was received with a PI number assigned. The 9-million

number will be used within the POMS database for tracking purposes. The 9-million number and the PI number, along with any other numbers assigned, will be included on release notices and other documents as appropriate. Accession numbers and accessioning records will be tracked through POMS according to procedures found in Section 541.1 of the NPMM.

540.33 Evaluation and Summary

A. Evaluating Plant Assemblies

(1) General

The purpose of a plant assembly is to observe the characteristics and comparative performance of numerous collections so that promising plant(s) can be selected for release.

(2) Documentation of Performance

(i) Plant performance will be documented as required for the release of the plant using statistically acceptable methods and procedures that will ensure confidence in and reliability of the results. Such techniques may require multiple plantings and plantings that are conducted at off-center locations. Standards for comparison should be included if available. The interdisciplinary approach is important and should be utilized in preparing plans for evaluations. All evaluations will be documented according to the study plan.

(ii) True quantitative data will be collected whenever possible. The use of relative rating systems, e.g. 1-9 scale, is discouraged. Criteria which are often used for plant evaluations include:

- Speed of germination
- Rate of growth
- Mature height
- Flowering date
- Flower color
- Seed maturity date
- Seed shatter/dispersal or seed retention
- Drought tolerance
- Insect and disease problems
- Overwintering survival

(3) Environmental Considerations

(i) The PMP, by means of a categorical exclusion found within the Code of Federal Regulations (CFR), does not routinely need to prepare a formal Environmental Assessment (EA) and/or Environmental Impact Statement (EIS) for new plant releases (7 CFR 650.6). However, under this CFR, an Environmental Evaluation (EE) is necessary to "identify extraordinary circumstances that might lead to significant individual or cumulative impacts. Actions that have potential or significant impacts on the human environment are not categorically excluded." The EE, conducted by the PMP, will be documented in the worksheet found in Section 540.83. The EE process determines if the new release will pose significant adverse effects on the environment. The EE is also the first step in determining if an EA and/or an EIS will be needed according to National Environmental Policy Act (NEPA) regulations.

(ii) All plant releases, whether a native or introduced species, will undergo an EE process supported by appropriate documentation. Native species are preferred for use in NRCS conservation practices and programs whenever possible and should be considered first when evaluating potential solutions to conservation problems. Introduced species may continue to be evaluated by PMCs, provided they do not pose a threat to the environment or agricultural systems, are determined not to be invasive, and there is a significant conservation need which may not be solved using native plants. Use the worksheet in Section 540.83 to conduct and document the EE for PMP releases. Plants will not be released until evidence or conclusions can be provided that a plant will not pose a significant adverse impact to the environment. These impacts include risks related to displacing natural plant communities (i.e., native plants or threatened/endangered plants), negatively altering natural processes in the environment (i.e., frequency of fire), decreasing the value of domestic animal and wildlife habitats, and altering the value of current land use (i.e., such as for agriculture or forestry).

(iii) The PMC will document during initial, advanced, and field planting evaluations whether the plant has characteristics which may pose a significant adverse impact to the environment. The PMC should test the plant under a variety of conditions, especially if there is little known about the species or if the plant is suspected of having undesirable characteristics. A review of the literature, initial and advanced evaluations at the PMC, field planting evaluation data, and herbage toxicity determination (if applicable) should all be used to determine undesirable characteristics which may contribute to a plant having a significant adverse impact on the environment. PMCs should be familiar with the criteria found in Section 540.83 far in advance of completing the worksheet so that they can adequately answer the questions found in it.

(iv) If it is found that the plant, while under evaluation in on-center plantings, off-center plantings, or field plantings, has undesirable characteristics or the potential for significant adverse impacts on the environment, then the PMC should carefully evaluate the proper

course of action to take. If it is clear that the plant poses a significant threat, is difficult to control, and has low potential for conservation use, then the plants will be removed from the testing program, destroyed, and the findings recorded in the PMC Annual Technical Report.

(v) Careful consideration should be given to pursuing the release of a plant that has undesirable characteristics but may have potential for meeting an urgent or priority conservation need. Contact the National Program Leader (NPL) and discuss all information available about the plant to determine if the release should be pursued or if the study should be terminated. If environmental impacts are not considered until the final stages of the release and it is determined, based on completion of the EE worksheet (Section 540.83), that it is not clearly OK to make the release, the NPL should be contacted immediately. The NPL will assist the PMC in determining whether to pursue the release or if the release process should be terminated under these circumstances. If the decision is to continue evaluating a plant for release or to continue with releasing a plant which could have significant adverse effects on the environment based on the EE worksheet, then it will be necessary to consult with NRCS experts to determine if an EA and/or EIS are needed. This involves preparing and publishing a formal Notice of Intent, inviting comments from other Federal and State agencies and the public, and preparing an EA and/or EIS. The NPL must be contacted for assistance with these procedures. Note that most NRCS releases will not reach this stage of NEPA compliance. Only those releases that are determined to have potential significant adverse effects on the environment, and have considerable merit for release and conservation, should be considered for having a full EA and/or EIS conducted prior to release.

(vi) If the EE worksheet determines that it is OK to make the release based on no significant adverse effect on the environment, include a summary of findings based on the documentation in the EE in the formal release notice (see Section 540.34(F)). The summary will clearly indicate that the proposed release does not have undesirable characteristics and is not known to have significant adverse impacts on the environment. In addition, the summary must include (if applicable) any known or foreseeable negative impacts the release will have on the environment (no matter how minor), limitations of the release based on the geographic area of intended use (i.e., if the plant is aggressive in a part of the United States outside its area of intended use), and methods for management and control of the release should it become a problem.

(vii) If the primary releasing agency is not a PMC, then NRCS will not participate in the cooperative release until an EE has been performed. Release notices will not be approved by the Ecological Sciences Division if they do not have a summary of environmental considerations in the release notice and an EE worksheet included with the release documentation.

(viii) The EE (Section 540.83), EA, and/or EIS (if required) must be included with the release documentation and a copy sent to the NPMC for archiving.

(4) Determining Regions of Adaptation

(i) Regions of adaptation for potential releases are best determined before the release is made. Determining the region of adaptation for a potential release is more important for cultivars and long-term evaluated (i.e., tested class) pre-varietal releases because of the additional information needed to document performance.

(ii) Regional adaptation plantings are usually conducted at PMCs in the area of intended use. There may be cases where the potential plant release is tested at off-center evaluation sites by other PMCs and PM Specialists within their service areas.

(iii) It is recommended that adaptation and performance of potential selected, tested, and cultivar releases be determined as soon as adequate seed or vegetative stock is available. Source-identified releases are often not used beyond a limited area so the full area of adaptation may not be necessary. Determining area of adaptation and performance allows PMCs and PM Specialists the opportunity to evaluate the new plant release and determine if additional plantings are needed in the service area. It also provides general information to potential growers of the plant in regions beyond the releasing PMC. Incorporating the selection into NRCS specifications and recommendations will be according to NRCS policy regardless of performance at the evaluating PMC. If the plant shows the potential to become invasive or has other undesirable characteristics in certain areas, it should be included in the release notice, release brochure, and other documentation about the adaptation of the release.

(iv) Region of adaptation is determined using Observation Nursery Plantings at other PMCs, Inter-Center Strain Trials, Off-center Evaluations, Field Plantings, or a combination of the four methods. The results of such evaluations may be incorporated into the release notice, planting guides, and other information about the release.

(v) The region of adaptation for NRCS releases is typically not equivalent to the region where the species occurs or is native. The species range distribution/description (i.e., species maps from the PLANTS Database) should not be used in place of the intended area of adaptation or the known area of adaptation unless the plant release has been tested throughout the range of the species.

(5) Observational Plantings

(i) Observational plantings are conducted to determine the potential area of adaptation of an accession(s) selected from initial evaluation or advanced evaluation plantings. These plantings are also recommended for determining the potential area of adaptation and future

use of pre-varietal releases beyond the originating PMC service area. Generally, observational plantings consist of non-replicated, single row or plots planted at other PMCs in the region of potential use with a standard of comparison, if one is available. Plants are evaluated for their adaptation and performance over a given number of years (e.g., 3 to 10 years) depending on the type of plant material and objective of the planting. For assistance in conducting observational plantings, contact the NTSC PM Specialist in your region.

(ii) All naturalized or introduced plants selected for potential release will be evaluated in an observational planting at multiple PMCs to determine if the plant has aggressive or invasive properties under controlled conditions outside of the releasing PMC service area.

(6) Inter-Center Strain Trials

(i) Inter-Center Strain Trials (ICST) are similar to observational plantings in that area of adaptation and performance of accession(s), cultivars, or pre-varietal releases are measured over multiple locations, which generally include PMCs, and years. ICSTs are used to minimize the number of potential plant releases with similar characteristics by identifying ones that are adapted to and perform well over a broad geographical region. Additionally, ICSTs are used to refine and strengthen NRCS technical guide standards by including plant selections that have proven performance.

(ii) Entries are planted in replicated plots using an experimental design to collect performance data on various plant parameters. A standard of comparison is generally included in the ICST, if one of more is available. Plants are evaluated for adaptation and performance over multiple years (e.g., 3 to 10 years) depending on the type of plant material and objective of the planting. Experimental design and data collection criteria will be determined by the originating PMC and PM Specialist in consultation with the NTSC PM Specialist.

(iii) All naturalized or introduced plants selected for potential release will be evaluated in ICSTs at multiple PMCs outside of the releasing PMC service area to determine if the plant has aggressive or invasive properties under managed conditions.

(iv) The PMC Manager and/or PM Specialist should work through the NTSC PM Specialist to contact other PMCs in their area to discuss field space requirements and evaluation data to be collected before the materials are sent to the receiving PMC. Each PMC is responsible for maintaining and evaluating materials received from another PMC. Plots may be maintained on a rotational basis, where new plots may be added as needed and old plots removed after evaluations are completed.

(7) Off-center Evaluations

(i) Typically off-center evaluations consist of replicated plot or row plantings of plant accessions for a potential release. These plantings should be established at locations that represent a land resource area or a site having soil, climate, and other conditions not represented at the PMC. Although initial testing is sometimes conducted off the center, these sites generally are used for advanced evaluations. Plant materials used in initial off-center evaluation sites will be limited to local native ecotypes or be under highly controlled conditions to prevent unwanted spread of the tested materials. Evaluation of potential releases, following a positive rating on a locally-conducted EE worksheet, can be conducted at locations away from the PMC.

(ii) Off-center evaluations generally are the responsibility of the PMC Manager and coordinated with the PM Specialist. See Section 540.14(E) for more information on responsibilities and approvals necessary for conducting off-center evaluations.

(8) Field Plantings

Field plantings may be conducted as the final evaluations in a study. The purpose of field plantings is to assess the conservation potential of new or unproven plant materials under actual use conditions. Field plantings are evaluated in comparison with standard varieties under a variety of soil, climatic, and land uses. Field plantings also provide an opportunity for testing of released plant materials for new uses or in new areas where adaptation is not known. Field plantings are especially important with pre-varietal releases to allow further demonstration of adaptation, determine additional conservation uses not identified prior to release, and will assist field office personnel to become familiar with the release and its potential uses. Study objectives will determine the need and location of field plantings. Field plantings generally are the responsibility of the PM Specialist and are coordinated with PMC Manager(s). Complete details for planning, designing, implementing, and evaluating field plantings are found in Section 540.14(F).

B. Managing and Analyzing Evaluation Data

Managing and analyzing evaluation data are important steps in the development of new releases. The objective is to determine quantitatively and qualitatively how potential releases may be better than the standards used. The following should be considered when conducting evaluations:

(i) Performance is to be documented as required for the development of new releases using statistically acceptable methods and procedures that will ensure confidence in, and reliability of, the results.

(ii) Standardized documentation is necessary for ease of recording and interpretation and to meet storage and retrieval requirements of automated data processing throughout the United States.

(iii) The data collected each year will be analyzed using Statistix 8 or a similar statistical package.

C. Preparing Summaries

The data from every active study will be summarized each year and presented in the PMC Annual Technical Report (see Section 541.2(D)). When a study is completed, the data from all years will be summarized and analyzed. The results and conclusions will be reported in the PMC Annual Technical Report, other forms of technology transfer media, Technical Notes, refereed papers, etc.

D. Making Plant Selections

(1) General

A plant selection is made by choosing the accession(s) from the assembly or the most desirable individual plants in an accession which have the best characteristic(s) for a particular conservation use. Determination of promising plants should be based on observations and quantitative/qualitative data.

(2) Criteria for Selection

(i) The selected accession must be superior to the standard plant in one or more characteristics for the intended conservation use. If no standard is available, the decision should be based on superior performance of the accession in relation to the performance of the other accessions being tested in the same group.

(ii) The desirable plant characteristics for a potential release and the criteria for selection should be documented in the study plan. General criteria which should be considered in the final selection process include, but are not limited to:

- Methods of propagation
- Mode of pollination (crossing, selfing, apomixis)
- Seed/vegetative production
- Yield potential
- Areas of adaptation or anticipated area of use
- Potential weediness or invasiveness and control methods
- Toxic qualities to animals or humans
- Establishment, management, and care requirements
- Market potential
- Acceptance by land managers

(ii) Under certain circumstances, it may be beneficial to blend accessions in developing an outstanding cultivar or pre-varietal release. Justification for combining accessions must be well documented before proceeding.

(3) Documentation of Selection

(i) Selection criteria should be documented in the release notice, the release brochure, and entered into the release module of POMS. Reports may include documentation to support moving a release to advanced evaluation or summary information for preparing a release notice. Section 540.84 provides an example of Documentation of a Plant Accession Selected for Advanced Testing. This document will accompany planting instructions of plant materials that are sent to other PMCs for observational plantings (see Section 540.33 (A) (5)). The factors found in this exhibit include information which may indicate the adaptation and performance of a plant accession. The final selection documentation for new plant releases is the release notice (see Section 540.34(G)(1)).

(ii) During the course of evaluation, PMCs will collect data to populate the "Conservation Plant Characteristics" worksheet for inclusion in the PLANTS database. This worksheet includes data specific for a species or release related to morphology, physiology, growth, reproduction, and use. Information is used in NRCS plant information databases.

(4) Disposition of Non-Selected Materials

(i) Materials which are not selected for advanced evaluation or release may still be valuable germplasm. If seed or plants of a vegetative collection from the original collection site is still available and are believed to be viable, then the PMC should make an effort to determine if the material is needed in the ARS NPGS. The PMC should contact the NPMC and follow the guidelines outlined in Section 540.74(J) to submit materials to the NPGS. The PMC should include all evaluation data for that accession with the seed.

(ii) Inclusion of non-selected materials in the NPGS:

Allows other researchers, including other PMCs, to use the germplasm for other studies.

Reduces duplication of efforts if future collections are made of the same species in the same location.

Provides performance and characteristics information for the accession if evaluation data was submitted to the NPGS.

(iii) Even seed from native collections which have been in storage for long periods of time, or may have questionable viability, may be of use to the ARS National Center for Genetic Resources Preservation for DNA analysis. This seed may be used for DNA analysis for comparing past to current populations. Contact the National Center for Genetic Resources Preservation or the NPMC to find out what information is needed to submit seed samples for

this purpose.

540.34 Release Procedures

A. Determining the Type of Release

(1) NRCS recognizes five release types. "Cultivar," "Tested," "Selected," and "Source Identified" releases can be made available to commercial growers following release. "Germplasm" releases are intended for additional research, selection, or development but not for commercial production. A summary of the following text is included in Section 540.85.

(2) Release types are further defined by one of two development methods recognized by NRCS, based on AOSCA guidelines: those which undergo genetic manipulation and those which undergo no genetic manipulation (natural). An entire population, accession, or ecotype may be selected in comparison with other populations under the "natural" development track. When a selection for a specific trait within a population is made, or when distinct populations are bulked, or individuals are crossed, the resulting population is then considered "genetically manipulated." Genetic manipulation can also involve inducement of mutation or biotechnology methods. If there is no genetic manipulation involved in making the release, and protocols have been established to minimize involuntary "non-purposeful" selection, the release may be eligible for a natural designation on the seed tag. All release types are eligible for both the genetic manipulation and natural tracks except for Source Identified releases, which are only eligible for the natural track. Section 540.86 presents the release types and development tracks as found in AOSCA guidelines.

(3) The decision as to which release type should be developed is dependent on conservation need, market demand and availability, source of original plant materials, and plants already available to do the job. Plants released as Selected or Tested releases may undergo continued selection and evaluation and be released later as a cultivar. How a release is typified should be based on criteria in the following descriptions:

B. Types of Releases

(1) Cultivar

(i) The international term "cultivar" denotes an assemblage of cultivated plants that is clearly distinguished by any characters (morphological, physiological, cytological, chemical, or others), is uniform in these characteristics, and retains its distinguishing characters when reproduced (sexually or asexually). The terms "cultivar" and "variety" are often used interchangeably. The term "variety" is accepted by AOSCA, however, this term also refers to a botanical classification (a variety of a species). Because of this confusion, the PMP will use only the term "cultivar" when referring to cultivar releases.

(ii) Cultivars may or may not have purposeful genetic manipulation. Examples of genetic manipulation include any type of crossing within species, wide hybridization, recurrent selection, or biotechnology gene transfer. Cultivar releases follow the ESCOP policy statement. This release method is expected to be used when there is a high priority need identified over a broad area, a limited number of commercially adapted materials available for that area, and suitable performance testing has been conducted. Range of adaptation, conservation value, and usefulness can be shown over the expected broad geographic and ecological area. There should also be a projected demand for the cultivar.

(iii) Cultivar releases use original site data, species literature searches, multiple testing sites, replications, and data collected over a period of several years (typically 7-11+ years depending on the species or type of plant) that statistically validates superior traits. Testing includes initial, advanced, and final evaluations plantings. Field plantings are used to validate performance, superior traits, area of adaptation, and conservation values.

(iv) Classes of seed for cultivar releases are defined by AOSCA; each generation through which a cultivar is multiplied is indicated by a class name, i.e., breeder, foundation, registered, and certified. The number of generations through which a cultivar can be increased is limited to a maximum of four by agreement between NRCS and the certifying agency. Number of generations allowed varies by species and is designed to minimize inadvertent "non-purposeful" selection; for some species this may mean generations are limited to fewer than four. The length of time a production field may be maintained for any one of the generations also varies by species, and the certifying agency should be consulted if it is unclear how long a field may remain in production.

(2) Tested

(i) Tested releases are the progeny of plants whose parentage has been tested and has proven genetic superiority or possesses distinctive traits for which the heritability is stable, as defined by the certifying agency. The seed or plants must be produced so as to assure genetic purity and identity. Such production could occur in either rigidly controlled, isolated natural stands or individual plants, or in seed/plant production fields or orchards.

(ii) Purposeful genetic manipulation may or may not be conducted; if no purposeful manipulation is conducted, the plant material may be eligible for a "natural" designation on a certification label. Plantings and evaluations have been conducted that support, address, and validate performance for identified needs. This release method is expected to be used when there is a high priority identified need, there are a low number of commercially adapted

materials available for this need, and performance testing is needed.

(iii) Tested releases use original site data, species literature searches, and multiple testing sites, replications, and data collected over a several year (typically 3-6 years) period that statistically validates superior traits. Traits of interest must be shown to be heritable in succeeding generations. Some data must be replicated. Standards are used for comparisons. Initial and advanced evaluation plantings are normal. Field plantings can be a part of testing. Tested releases differ from cultivars in that the complete area of adaptation for tested releases may not be known. Cultivars are intensively evaluated for a longer period of time over a wider selection of sites and their range of adaptation has been fully documented.

(iv) The same generation class names accepted by AOSCA for cultivars cannot be used for pre-varietal releases. Instead, AOSCA defines each generation through which a pre-varietal release is multiplied by a generation number (i.e., G0, G1, G2, etc.) for generation zero, generation one, generation two, etc. Generation numbers are similar to the seed class generations defined for cultivars: G0 is equivalent to breeder, G1 is equivalent to foundation, G2 is equivalent to registered, and G3 is equivalent to certified. Generations for tested releases are limited to a maximum of four by agreement between NRCS and certifying agency. Length of stand in a production cycle for any one of the generations varies by species.

(3) Selected

(i) Selected releases are phenotypically selected plants of untested parentage that have promise but no proof of genetic superiority or distinctive traits. The propagating material of this release class should be produced with methods that ensure genetic purity and identity from either natural stands or seed production areas or seed/plant production fields or orchards.

(ii) Genetic manipulation may or may not be conducted on the selected material; if no purposeful manipulation is conducted, the plant material may be eligible for a "natural" designation on a certification label. The selected release type can involve establishment of crossing blocks and selection of materials from the progeny of a crossing block. This release method is expected to be used when an identified high priority need exists; there is a lack of or low availability of commercial, adapted materials for this identified need; and/or the commercially available sources are not adapted and have no performance documentation to meet the identified need.

(iii) Selected releases use original site data, species literature search, and initial evaluation plantings to support releases. Data may or may not be replicated. Comparisons are made to other accessions or cultivars for 1-2 years and shows the selected material is better than others in some way that will meet client needs. Limited advanced evaluation planting data can be used to further support the release. Initial evaluation plantings normally would be completed on a typical site representative of the conservation need.

(iv) Generations are limited to a maximum of four by agreement of NRCS and the certifying agency (see information under tested releases).

(4) Source Identified

(i) Source identified releases within the PMP should usually be used only under special circumstances, for example, where use of local ecotypes are necessary. Selected or tested categories of pre-varietal releases are normally more appropriate release types and preferred for NRCS releases.

(ii) Source identified releases are seed, seedlings, or other propagating materials collected from natural stands, seed production areas, seed fields, or orchards where no selection or testing of the parent population has been made. No planned genetic manipulation is conducted, that is, all source identified releases are defined as "natural" track germplasm. The source identified release should be regarded as comparable to an ecotype. Protocols should be established to minimize involuntary non-purposeful selection in initial assembly or production blocks. Any deliberate selection made from assemblies would make the release ineligible for the "natural" designation.

(iii) The original collection site will be known, and any off-site production will be designated on the tag. This release method is expected to be used only when:

There is a high priority and urgent need for identified plant materials.

There is a lack of commercially available and adapted materials for this identified need.

There is high potential for immediate use in the identified need area.

A local population source exists.

(iv) Details of original population or individuals, soil-site characteristics, climate, and other physiographic data must be documented. Source identified releases use original site data and species literature review for basic documentation. Every seed harvest made from a natural stand is designated G0 and unlimited generations are allowed by AOSCA.

(v) Source identified releases can be initiated by anyone. In many cases, NRCS may not be involved beyond providing technical assistance. Public agencies, private individuals, and companies may decide to secure locally adapted ecotypes for restoring indigenous plant communities on disturbed sites. On request, NRCS can provide technical assistance relative to species selection, seed phenology, collection, conditioning, storage, asexual and sexual propagation, site preparation, and seeding techniques. Interested parties will be advised of

the pre-varietal release process and referred to the State seed/plant certification agency. Clients will be encouraged to utilize the State certification agencies to verify origin and ensure genetic integrity of harvested seed or plants. NRCS will not be party to source identified releases initiated by private and other public agencies where the State or PMC long range plan does not show the activity as a high priority need.

(5) Germplasm

(i) A germplasm release refers to basic genetic plant material possessing one or more potentially desirable characteristics that may be of value in plant breeding, the release of which is in the best interests of USDA and a State or Federal agency research program. A germplasm release consists of basic genetic materials and should generally be provided to all plant breeders who request it, but it should not be moved into commercial use without further evaluation and development.

(ii) Most germplasm releases by NRCS will involve materials that have undergone preliminary genetic manipulation. Most often a germplasm release will result from a reduced priority for the need that initiated the evaluation, or is plant material that is considered valuable but does not meet an NRCS priority, or has some limitation that NRCS does not wish to overcome.

(iii) Documentation will include original site data, species literature search, and initial and advanced evaluation data replicated at multiple sites over a several year (typically 6+) period. There will be enough data to support the materials as having potential for additional research.

C. Plant Identification

(1) All plants demonstrating potential for advanced evaluations and release are to be positively identified as to genus, species, and subspecies or variety, as appropriate. Potential releases which cannot be identified to a species or may contain a mix of more than one species or hybrids cannot be released.

(2) If positive identification cannot be made by PMC staff, a pressed plant specimen should be submitted to an appropriate college, university, or other authority. Plant specimens should be prepared in the manner described in Section 542.3. After positive identification is made, the PMC originally submitting the specimen will ensure that all records and documentation on the material are correct. In addition, any PMCs or other offices which have received this material should be notified of the name change.

(3) Each request submitted to a college, university, or other authority for identification should contain the following:

(i) A voucher plant specimen properly labeled, along with additional information that would help the taxonomist to work through the keys and make the identification and a specimen label. The voucher plant specimen should be prepared following the guidelines in Section 542.4.

(ii) Detailed documentation and evaluation data to help identify the plant, such as plant height, leaf characteristics, flowering and seed maturity dates, and flower color.

(iii) Where and when the specimen was collected (geographic location, soil type, associated vegetation, etc.).

(iv) One seed packet containing approximately 100-200 seeds. The seed packet should be attached to the voucher specimen.

(v) Anticipated genus and/or species name of the sample.

(vi) NRCS Accession Number or PI Number, if assigned.

D. Naming Plant Releases

(1) General

(i) All types of plant materials releases are named at the time of release, and appropriate publicity and credit are given to cooperators and the originating source of the materials. The selected names should be acceptable to the agencies and organizations cooperating in the release. Release names are used to identify improved materials which are being released to the public and in commerce.

(ii) Distinction should be made between cultivar names and pre-varietal release names so that pre-varietal releases are not later confused as a cultivar name in commerce. Names of all classes of release are to be selected according to guidelines provided in the International Code of Nomenclature for Cultivated Plants (see Section 542.2), the provisions of the ESCOP Policy Statement (Section 540.79), and current AOSCA guidelines. Release names for all types of releases are limited to a maximum of 10 syllables and 30 characters, including spaces.

(2) Selecting and Using Cultivar Release Names

(i) Selection of cultivar names is at the discretion of the releasing agency, providing the cultivar name follows the formulation rules of the International Code of Nomenclature for Cultivated Plants. Often, the collection location or a term which describes the attributes of the release is used as the cultivar name.

(ii) The following rules will be used when formulating cultivar names according to the International Code of Nomenclature for Cultivated Plants:

Cultivar names must be a word or words in the modern English language. Latin words, or words which may be considered Latin, may not be used unless they are the

classical name of an ancient Roman person or place.

Cultivar names may not be repeated within a genus, species, or denomination class. A denomination class is a grouping of similar genera. For example, the same cultivar name may not be applied to a species of both *Festuca* and *Lolium*. (Note: the NPMC has lists of denomination classes which are checked when clearing names for new cultivar releases.)

Cultivar names must consist of no more than 10 syllables and no more than 30 letters or characters, excluding spaces and demarcation marks. [Note: the PMP limits the length to 30 characters, including spaces because of database restrictions.]

Cultivar names may not consist solely of common descriptive words (i.e., 'Large' or 'Variegated') in a modern language unless the descriptive word is used with a non-descriptive word (e.g., 'Velvet Cream'), or unless the word is a recognized name of a color (i.e., 'Indigo' or 'Majestic Red').

Cultivar names may not contain the following words: variety, var., cross hybrid, grex, group, maintenance, mutant, seedling, selection, sport, strain, improved, and transformed.

Cultivar names may not contain punctuation marks except for the apostrophe ('), the comma (,), a single exclamation mark (!), the hyphen (-), and the period (.).

When used with the common name, the release name should be written as 'Cave-In-Rock' switchgrass. When used with the scientific name, the release name would be written as *Panicum virgatum* 'Cave-In-Rock'. Single quotes are used around the cultivar name.

(3) Selecting and Using Pre-Varietal Release Names

(i) The naming guideline accepted by AOSCA in January 1998 specifies a 2-part name to be used for all pre-variatal releases (i.e., source-identified, selected, and tested releases).

(ii) When naming a pre-variatal release, the first part of the name or descriptor term, can be any combination of words, letters, or numbers the releasing PMC feels is appropriate. The second part of the name is the fixed term "Germplasm," which denotes that the material is not a cultivar. The two terms used together are written as Beltsville Germplasm (for example). The first letter of each word is capitalized. Quotes are not used around the pre-release name as they are with cultivars.

(iii) When used with the common name, the release name should be written as Beltsville Germplasm little bluestem. When used with the scientific name, the release name should be written as *Schizachyrium scoparium* Beltsville Germplasm. On release notices and other information the release can be described as Beltsville Germplasm, Beltsville Germplasm little bluestem, or *Schizachyrium scoparium* Beltsville Germplasm.

(4) Selecting and Using Germplasm Release Names

As with other pre-variatal material, germplasm type releases are given a 2-part name similar to the AOSCA guidelines, the second part of which is the fixed term "Germplasm" to denote that the material is **not** a cultivar. It is standard practice, however, to use a designation in the first part of the name to indicate that the release differs from other pre-variatal release types.

Germplasm material is generally given a designation based on its genetic make-up, any features useful for further exploitation, or accession identifier. For example, a germplasm release of little bluestem with four chromosome sets and collected in North Dakota might be named *Schizachyrium scoparium* ND4X Germplasm or ND4X Germplasm little bluestem. A meaningful sequence of letters and/or numbers should be selected by the releasing PMC with the understanding that the germplasm release may be used for future development by other researchers.

(5) Name Clearance

(i) The name of all releases, regardless of release type, must be cleared through the NPMC.

The following information should be included when submitting a request for name clearance to the NPMC:

Requesting PMC/ PM Specialist name and contact.

Plant scientific name and plant common name.

PLANTS plant symbol (required).

NRCS Accession Number and/or assigned PI Number (required).

Type of Plant (grass, grass-like, legume, forb, or woody).

Anticipated class of release (cultivar, tested, selected, source identified, or germplasm).

List up to 3 proposed release names in order of preference.

Anticipated release date (month/year).

Attach Advanced Evaluation Documentation for the release.

(ii) The NPMC will check to make sure that cultivar names are formulated according to the rules of the International Code of Nomenclature for Cultivated Plants, and that pre-variatal release names are formulated according to current ESCOP and AOSCA guidelines. The NPMC will check for potential name conflicts with ARS-NPGS-GRIN, the USDA Plant Variety Protection Office, the U.S. Plant Patent Office-Trademarks Division, and the appropriate registrar or office for the genus in question. The extent to which the NPMC checks for conflicting names depends on the type of plant, the genus or species, and type of release being made. Once name clearance has been confirmed for the selected name(s), a letter will be sent from the NPMC to the releasing PMC indicating that the name has been cleared for use. If the

requesting PMC has submitted several options for the release name, names should be ranked in priority order. The NPMC will confirm the first available highest ranking name as the new release name in the letter sent back to the requesting PMC.

(6) Name Registration and Publication of the Plant Release Notice

(i) Registration or publication of the plant release notice is required for all release types. Registering release names and publication of the plant release notice with the proper office, registrar, or publication gains recognition for the release and discourages others from using the same release name for a different accession of the same species. All applicable plant release notices of native species, regardless of plant type, will be submitted to the [Native Plants Journal \(NPJ\)](#) for publication. In addition to publication in the NPJ, cultivars of agronomic importance will be registered in [The Journal of Plant Registrations](#) (for agronomic crops, grasses, and legumes), [HortScience](#) (for vegetable, flower, fruit, and nut varieties), [American Nurseryman](#) (for woody ornamentals), and [Rangeland Ecology & Management](#) or [Rangelands](#) (for releases for rangeland application) may be used for publication of release notices. The NPMC can help obtain the proper application forms and registrar contacts if needed.

(ii) The requesting PMC should complete the release name registration forms provided by the registrar, as necessary, and send copies to both the registrar and the NPMC. The NPMC will update all name information in the NPGS-GRIN record for the release as needed.

(iii) The primary PMC for the release pays any costs required for name registration. This should be incorporated into the PMC budget as needed.

(iv) PMCs will receive credit for such name registrations as part of their release package and as a new document.

E. Assigning Plant Introduction (PI) Numbers

(1) General

PI numbers are assigned through the NPGS. They are used to introduce the germplasm to the public and make it available for other scientists. It is ARS policy that once a PI number is assigned to an accession, the accession must be maintained in perpetuity at a NPGS maintenance site. Assignment of PI numbers is concurrent with submitting germplasm for storage to the NPGS. The NPGS reserves the right to not accept germplasm; in which case, a PI number would not be assigned. Section 540.34(I) discusses the protocol for submitting germplasm to NPGS.

(2) When to Apply for a PI Number

Application for a PI number should be made when a PMC is within one year of finalizing a new release. When Plant Variety Protection (PVP) is being considered, PI numbers should not be applied for. Releases which have been assigned a PI number for over one year are considered public domain and are no longer eligible for PVP (see Section 540.35(D)).

(3) Applying for a PI Number

(i) PI numbers may be requested once the release name has been cleared through the NPMC, and all other items have been completed according to the checklist for Plant Selection Studies (Section 540.76). This ensures that the release name and other pertinent information will be entered into the NPGS system when the PI number is assigned, and reduce paperwork after the PI number has been assigned. Seed or vegetative material must be available to be sent to NPGS at the time a PI number is requested.

(ii) Follow the guidelines below when submitting requests to the NPMC. The NPMC will determine the appropriate NPGS Curator for the species being released and make initial contact with the Curator. The NPMC will find out what documentation the Curator needs and send a response to the requesting PMC. The requesting PMC should then forward the appropriate materials directly to the Curator. Send copies of all correspondence between the PMC and the Curator to the NPMC. The information required varies with each Curator and species, but typically includes:

Requesting PMC/ PM Specialist name.

Date.

Person requesting and phone number.

Plant Scientific Name.

Plant Common Name.

PLANTS plant symbol.

NRCS Accession Number and/or other numbers assigned to this release.

Type of Plant (grass, grass-like, legume, forb, or woody).

Anticipated class of release (cultivar, tested, selected, source identified, or germplasm).

Anticipated release date (month/year).

Release and/or advanced testing documentation which clearly shows the superior or distinguishing characteristics of the accession being released and the intended uses of the

release.

Historical documentation, including original collection site and collector's name.

Seed or vegetative materials must be sent with the information package. Seed may include a specified amount or volume. Vegetative material may include unrooted cuttings, rooted cuttings, or whole plants.

(iii) Once a PI number has been assigned, all relevant information on the release is entered into the NPGS-GRIN and confirmation is sent to the requesting PMC. In some cases, a temporary PI number may be assigned. The NPMC will check the GRIN database to ensure that the information for the release is correct and will follow up with the GRIN database management unit to make any corrections, if necessary.

(4) Using PI Numbers

PI numbers should be included, along with the 9-million number, on all release documentation, submission of plant materials to the NPGS, and on correspondence with NPGS and others who are familiar with PI numbers. Using both the PI number and 9-million number will help prevent double-assigning of PI numbers by the NPGS. Once assigned, enter the PI number in the POMS database in both the Accession and Releases modules. For PM, the 9-million number remains the primary accession identifier so that studies and evaluations for a release are consistent (see Section 540.32(B)).

F. Releasing Agencies

(1) Involving other agencies in NRCS releases is an important part of the testing and marketing of new plant releases. Conservation plant releases may be made in conjunction with other Federal, State, and local agencies, universities, and non-profit organizations. Releases cannot be made with privately owned commercial growers or nurseries.

(2) Other agencies involved in the release should be included as signers on the official release notice and as co-authors on any technical papers or marketing materials involving the release, as appropriate.

(3) Where NRCS is the secondary releasing agency, the PMC will follow the procedures of the primary releasing agency. However, the PMC will complete an EE plus submit the new plant release package and evaluation worksheet to the NTSC PM Specialist as outlined in 540.34(G).

G. Preparing the Release Package

(1) Plant Material Availability

The amount of seed or stock needed for commercial increase purposes is to be determined by NRCS and the cooperating agencies, and is to be on inventory prior to the release of the plant material. There should be sufficient quantities of foundation quality seed and plants so that distribution can be made to interested commercial growers after the release is final. This is a critical part of making sure the new release is available for large scale increase and use in conservation plantings.

(2) Preparing Release Notices

(i) The notice of release describes the plant and its unique characteristics, its use and area of adaptation, and how and by whom the breeder, foundation, generation one, or other classes of materials are to be maintained. The notice is to specify when and where seed or plants will be available and when the release is expected to be commercially available. In addition, the notice must contain a summary of environmental considerations based on the EE worksheet (Section 540.83) which has been completed for the release. The summary must show that the proposed release does not have undesirable characteristics or significant adverse impacts on the environment. Also it must include, if applicable, any known or foreseeable impacts the release will have on the environment, no matter how minor; limitations of the release based on the geographic area of intended use (i.e., if the plant is aggressive in a part of the United States outside its area of intended use); and methods of management and control of the release, should it become a problem. Release notices will not be approved by the Ecological Sciences Division if they do not have a summary of environmental considerations. If it is determined in the EE that the release has potentially significant adverse effects on the environment, the PMC should contact the NPL prior to completing the release notice and routing for signatures (see Section 540.33(A)(3)) to determine if an EA and/or EIS is needed for the release.

(ii) The PMC Manager and/or the PM Specialist will prepare the release documentation. The notice is to be reviewed by cooperating agencies and organizations. The notice of release generally is prepared after the certification requirements have been determined. (See Section 540.34(J).) A release is not considered official until final review and signatures by all participating agencies have been completed. Section 540.88 is a general outline for all release types. Sections 540.89, 540.90, 540.91, 540.92, and 540.93 are typical release notices for cultivar, tested, selected, source identified, and germplasm releases, respectively.

(3) Prior to routing a new conservation plant release notice the PMC, along with the PM Specialist, will prepare a release package. The release package contains an assembly of the materials needed to support the new conservation plant release. A full release package contains the following:

- (i) The complete notice of release (Section 540.34(G)(3)).
 - (ii) A copy of the name clearance letter received from the NPMC (Section 540.34(D)(5)).
 - (iii) Indication of how the plant material was botanically identified and a copy of correspondence, as appropriate, relating to positive botanical identification of the proposed release if done by an outside partner or entity (Section 540.34(C));
 - (iv) The completed EE (Sections 540.34(A)(3) and 540.83).
 - (v) Completed "New Plant Release Package and Evaluation Worksheet" (Section 540.87).
 - (vi) Completed, or ready for publication, release brochure (Section 540.90);
 - (vii) New or updated Plant Fact Sheet (Section 540.76) or Plant Guide (Section 540.77).
 - (viii) Completed Conservation Plant Characteristics worksheet for the release to be submitted to PLANTS (540.33(D)(3)(ii)).
 - (ix) Draft press release or marketing plan (Section 540.34(H)).
 - (x) A completed or ready for publication release registration abstract or article, appropriate for the level of release (for example, a source identified release may not be registered), for the Native Plants Journal, Journal of Plant Registrations, HortScience, American Nurseryman, or other appropriate venue (Section 540.34(D)(6)).
- (4) The procedure for routing a release package through the approval process involves the following:
- (i) The PMC submits the entire release package to the NTSC PM Specialist for their region.
 - (ii) The NTSC PM Specialist review focuses on the following:
 - Is the documentation packet complete as per the NPMM?
 - Is the documentation professional in appearance and easily understood?
 - Is testing analyzed and summarized in a manner appropriate with the release type as per the NPMM?
 - Do summarized results support the proposed uses and the geographic area of recommended use?
 - Does the release notice clearly state why this material is superior or different than previous releases and/or other plants of the same species currently available?
 - (iii) The NTSC PM Specialist consolidates any comments and returns the release package to the PMC within 3 weeks of original receipt. The NTSC PM Specialist either returns a completed evaluation with a point score or provides recommendations to the PMC on revisions. A review will be considered successful and complete after all Plant Materials Release Committee comments are adopted and/or addressed via re-submittal of the package. A successful review will result in a PMC receiving a score between 3–15 (15 total available) points under the release component in the PM performance index as shown in Section 540.87. The NTSC PM Specialist will document the points earned by the release component in the exhibit and provide a copy of the points awarded to the NPMC, the NPL, and the originating PMC.
 - (iv) The PMC either proceeds to obtain signatures on the release notice or revises the release package and resends it back to the NTSC PM Specialist. When the NTSC PM Specialist review is final, the release notice is routed for signatures
 - (v) The release notice is signed by the appropriate personnel of the area served by the PMC and the proposed plant release. All releases where NRCS is involved will be signed by each State Conservationist within the primary releasing PMC service area, or by the chair of the State Conservationists' Plant Materials Advisory Committee where agreed upon. When the area of recommended use of the released plant exceeds the primary PMC service area, additional State Conservationist signatures may be desirable and should be determined by the primary releasing PMC advisory committee. All cooperating agencies must sign the release notice as well. Final signature will be at NHQ; the release notice is sent to the NPL to obtain the signature of the "Director, ESD." The NPL will then forward the release notices back to the originating PMC or office. All NRCS releases, regardless of release type, must be sent to the NPL to obtain the final signature of the Director of ESD. The notice of release and EE is routed for signatures in the following order: State Conservationists, other cooperating agencies, and then to the NPL. This routing may differ when NRCS is a secondary releasing agency.
 - (vi) The complete release package, as indicated in 540.43 (G), must be sent by the PMC to the NPL as well, preferably with the final release notice to be signed by NHQ. The NPL returns the signed notice of release and EE back to the originating PMC and sends a copy to the NPMC. The NPMC will maintain a file on each plant release in the PMP.
 - (vii) The PMC sends a copy of the complete release package with a signed release notice to all cooperating agencies.
 - (viii) Electronic copies of the new or updated plant fact sheet, plant guide, and Conservation Plant Characteristics worksheet will be sent to the National Plant Data Center for incorporation into PLANTS.
 - (ix) The release notice, new or significantly revised plant fact sheet and plant guide, release registration notice, and release brochure will be entered into the POMS database and electronic files sent to the PM Webmaster.
 - (x) Name registrations will be submitted to the appropriate journal for publication.

H. Marketing New Plant Releases

- (1) It is essential to publicize new releases to improve visibility and gain acceptance for use of

a new release. A marketing plan should be developed with the plant release study plan. Publicity of a new release may include plantings, such as Field Plantings (see Section 540.33(A) (8)), Special Demonstration Plantings (see Section 540.17(D)) and Conservation Field Trials (see Section 540.17(F)), and written materials, such as release brochures (see Section 540.94), revision of plant fact sheets (see Section 540.76) or plant guides (see Section 540.77), and news releases. A release brochure, or similar document, should be prepared for each release. Release brochures should describe the characteristics of a species and/or release(s) and describe the adaptation, uses, establishment, and maintenance of the plant. Additional information on seed production, establishment, and management for the release should be included in plant guides (see Section 540.77) or other written documents. New releases should also be included into FOTG standards, specifications, and job sheets as appropriate for specific conservation practices. The PMC Manager and the PM Specialist are to prepare plans and materials for promoting the new release.

(2) Assistance from the State Public Affairs Specialist (PAS) should be sought in preparing public information materials. Public information materials are to include a statement when plant materials will be commercially available. Popular type news releases and publications may be delayed following a plant release until such time as the material is commercially available. Additional publicity can be obtained through bulletins, release brochures, Web sites, local articles, journals or periodicals, Soil and Water Conservation Districts, and commercial growers. NRCS guidelines on preparing and providing information to the public and news media may be obtained from the State PAS.

I. Preservation of Plant Germplasm

(1) General

(i) Plant germplasm preservation is accomplished mainly in cooperation with the NPGS. Plant germplasm within NRCS includes initial collections (accessions) and conservation plant releases. Germplasm at any stage of plant selection, i.e., initial collections and assemblies through final plant releases, should be considered for long-term preservation. Preservation of initial collections/accessions will reduce duplicated efforts in making field collections or assembling collections of plant materials and make the collections available for future research by NRCS and others.

(ii) Preservation of all NRCS conservation releases is required. All new plant releases must be submitted for preservation no later than 90 days after being released. This ensures that the released materials are backed up at another location in case of a disaster at the PMC.

(2) Role of the NPMC

The NPMC will serve as the clearinghouse for all information on germplasm preservation of NRCS releases. The NPMC will periodically inventory NPGS records to determine what materials need to be submitted or resubmitted to maintain viable seed or vegetative materials at the NPGS sites. The NPMC will work with individual PMCs to identify germplasm preservation needs and assess the most appropriate method of preservation. In addition, for any materials which cannot be preserved within the NPGS, the NPMC will serve as a back-up site or will find another appropriate site to maintain the germplasm.

(3) Submission of materials to the NPGS

(i) There are two methods of preserving germplasm in the NPGS: through the PI Stations and through the National Center for Genetic Resources Preservation (NCGRP, formerly the National Seed Storage Laboratory). The PI Stations are the first source for preservation. Materials not accepted by the PI Stations can be submitted to the NCGRP.

(ii) PMCs interested in preserving germplasm should first contact the NPMC. Seed or plants should not be sent to the NPMC. The NPMC will contact the appropriate NPGS Curator and determine if the Curator is interested in receiving the material. If the NPGS Curator would like to include the material in the active collection at a PI Station, he/she will indicate the plant form (seed, plants, or vegetative propagules) and amount to be sent. The NPMC will forward all information to the requesting PMC. The PMC will then forward materials directly to the Curator and provide a copy of all correspondence to the NPMC. Germplasm accepted by the NPGS Curator will be assigned a PI number or PI Station identifier, and information about each accession will be entered in the GRIN database. The NPGS will maintain adequate quantities of seed to make the material available to other interested scientists.

(iii) The Curator may recommend in some cases that seeds be maintained at the NCGRP rather than at a PI Station. The NPMC will contact the NCGRP to determine if they are interested in preserving the germplasm. If the germplasm is accepted by the NCGRP, the NPMC will contact the requesting PMC with materials needed by the Curator. In all cases, the requesting PMC will be required to complete a Seed Storage Application Form (Section 540.95). This form indicates the amount of seed which is required by NCGRP. The PMC will then forward materials directly to the NCGRP in Fort Collins, Colorado, and provide a copy of all correspondence to the NPMC.

(4) Submission of botanical specimens

In addition to preservation as live material or seeds, all materials released through the PMP should be represented in a herbarium with a mounted botanical specimen. Botanical specimens

should be prepared according to the guidelines found in Section 542.3. It is particularly important that a standard type specimen be prepared for all cultivar releases. A type specimen contains the typical and/or unique features of a particular cultivar, and may be used to differentiate between similar cultivar materials in legal cases where PVP is an issue. Generally, the National Arboretum will maintain the type specimen sample for each cultivar. In addition, if there is a registrar for the genus, a herbarium specimen should also be sent to the registrar. The releasing PMC will maintain a record of where the type specimen is stored and notify the NPMC of that location. It is not necessary to identify a specimen as a standard for pre-varietal materials. Herbarium specimens of all releases should be sent to the NPMC, and they will then be forwarded to the National Arboretum for long-term storage.

J. Certification Standards for Seed and Plants

(1) General

Certification of seed and/or plants provides the end-user an assurance that the material being purchased or received is, in fact, the material they think it is. Certified seed or plants are sold or distributed under minimum standards which have been established by AOSCA and the State seed certification agency (or similar agency). Certification classes of cultivars include breeder, foundation, registered, and certified generations. Certification generations of pre-varietal releases include G0, G1, G2, etc., for the number of generations from the original population. The G0 is equivalent to the breeder, the G1 to the foundation, and so on. Refer to Section 540.85 for limitations of generations for each release type. All releases may not need to be distributed under the certification program. Examples might include vegetative releases where no certification program exists or seed producing releases distributed in very limited amounts.

(2) Guidelines for Certification

(i) Plants or seed intended for certification by the State seed certification agency (or similar agency) need to be produced according to standards established by the agencies cooperating in the release and the certifying agencies. The PMC Manager, the PM Specialist, and cooperating agencies, such as experiment stations and crop improvement associations, need to prepare specific certification guidelines for plants where certification standards have not been established. Guidelines for established species or releases may be found in the Certification Handbook prepared by AOSCA.

(ii) In releasing new plant materials, NRCS is guided by State and Federal regulations and the ESCOP policy statement (Section 540.79). Insofar as possible, materials are released in cooperation with or with concurrence of cooperating agencies. The data required to document a cooperative release will be identified and agreed upon with cooperators. It may vary by type of release. Detailed study plans will outline evaluation factors, methods of data collection and analysis, and identify potential cooperators and evaluation factors. A thorough summarization of performance and data will be made well in advance of the anticipated release date to ensure that the information is available or that appropriate steps can be taken to obtain it.

(iii) Procedures for certification vary depending on the type of release being certified. NRCS recognizes cultivar, tested, selected, source identified, and germplasm release types. These release types are defined and discussed in Sections 540.24(A) and 540.85.

540.35 Protecting PMC Releases

A. General

(1) Title 37 CFR 501.6, which pertains to ownership of inventions made by Government employees, generally provides that the Government is entitled to ownership of any invention directly related to the official duties of the inventor. New plant releases and/or technologies developed by PMCs for conservation use represent new inventions. As the owner, the Government is entitled to apply for protection.

(2) The principal reasons for seeking statutory protection of a new plant cultivar are to safeguard the cultivar name, to provide a basis for granting exclusive production rights to one or more growers, and to protect the integrity of the released germplasm by limiting generations or production cycles. Without legal protection, there can be no licensing of production rights. Patents for Plants, Utility Patents, and the Plant Variety Protection Act (PVPA) are methods that can be used to seek statutory protection. The PVPA is applicable for use when seeking protection of PMC releases.

B. Patents for Plants

Patents for Plants (35 USC 161, Amendment 1954, 68 Statute 1190) are administered by the U.S. Patent and Trademark office, Department of Commerce. It allows "Whoever invents or discovers and asexually reproduces any distinct and new variety of plant, including cultivated spores, mutants, hybrids, and newly found seedlings, other than a tuber propagated plant or a plant found in an uncultivated state..." to obtain a patent. The key words here are "asexually reproduced" and "other than...found in an uncultivated state ..." The latter is interpreted to mean that plants cannot be merely selected from an uncultivated state (wild) and patented, but must undergo some genetic change or selection. Because most, if not all, asexually propagated releases by NRCS represent a

selection from an uncultivated state, procedures for seeking plant patents are not covered in this policy. If a plant that is to be released is asexually propagated and has been genetically altered, the State Conservationist's Plant Materials Advisory Committee of the PMC developing the plant release should explore with the NPL the desirability of seeking a plant patent.

C. Utility Patents

Utility patents (35 USC 101) are also administered by the U.S. Patent and Trademark Office. It allows "Whoever invents or discovers any new and useful...manufacture, or composition of matter, or any new and useful improvement thereof" to obtain a utility patent, provided that the invention meets several criteria set forth in the law. Plant materials may fall into the category of "manufacture" or "composition of matter." Utility patents are more difficult to obtain than the other forms of protection, and require that the "hand of man" (e.g., by cross-breeding) be involved in making the invention. The mere discovery of a new plant growing in the ground does not qualify it for such protection. In addition, not only must the cultivar be novel, it also must be "non-obvious" to one of ordinary skill in the art. This type of protection is more than twice as expensive as PVPA and is better than PVPA only if one wishes to protect, for example, a newly bred characteristic in a genus, as opposed to protecting a specific cultivar. The application of utility patents does not apply to PMC work and will not be used.

D. Plant Variety Protection Act

(1) PVP is a process by which plants can receive legal protections similar to patents. The PVPA (7 USC 2321 et seq.) was enacted December 1970 and provides legal protection, much like a patent, to developers of new releases or varieties of plants that reproduce sexually. The Act, administered by AMS, covers seeds, transplants, or plants of all seed-reproduced plants except first-generation hybrids of any kind. A PVPA certificate is awarded to any owner of a cultivar after an examination shows it clearly differs by one or more identifiable morphological, physiological, or other characteristic from all varieties that are publicly known. If any variation occurs, it must be describable, predictable, and commercially acceptable. When sexually reproduced, or reconstituted, the cultivar remains unchanged as to its essential and distinctive characteristics with a reasonable degree of reliability. A description of characteristics, genealogy, and breeding procedure are required. After a PVPA certificate is issued, protection lasts for 18 years. The owner of a U.S. protected cultivar has exclusive rights to multiply and market the seed of that cultivar or grant these rights to others (cooperating agencies, universities).

(2) PVP only applies to cultivar releases. When combined with exclusive licensing, PVP helps ensure that critically needed conservation plants of limited demand will remain available for consumer use.

(3) Seeking PVP

(i) Well in advance of the anticipated release date, the State Conservationist's Plant Materials Advisory Committee for the releasing PMC will evaluate whether PVP should be sought for the release. If there is potential for seeking protection of a release under the provision of the PVPA, the releasing PMC should contact the NPL and NPMC for additional guidance and guidelines.

(ii) The releasing PMC should not submit a seed sample to NPGS or apply for a PI number until within one year of the planned date of seeking the protection. This is because PVPA considers any accession that has been assigned a PI number for more than one year prior to the application date to be in the public domain, and not eligible for PVP.

(iii) If the decision is made to seek PVP, the releasing PMC will:

Contact the NPMC for application forms and other documents necessary for applying for PVP.

Prepare the release notice. The release notice will state that protection will be sought under the PVPA. The release notice will also state that the use and reproduction of the cultivar for plant breeding or other bona fide research shall not constitute an infringement of the certificate, as provided by Section 114 of the PVPA.

Obtain the concurrence of other cooperators in the release.

Determine that adequate interest is available to warrant its commercialization.

Develop an abstract documenting the rationale and intent of seeking PVP.

Prepare a 2,500 viable seed sample to be included with the application.

Complete all applications for PVP.

(iv) NRCS, under the direction of the NPL, with assistance from the releasing PMC, will:

Verify availability of funds required to seek PVPA.

Obtain the certificate of protection (approximately \$3,000).

Develop a list of potential licensees interested in producing the new cultivar that represents an equal opportunity for all interested parties to become a licensee.

(v) The releasing PMC should provide the information identified above to the NPL, who will serve as the NRCS PVP Liaison with ARS, AMS, and the Office of General Council (OGC). The NPL will advise AMS, OGC, and the ARS-Office of Technology Transfer (OTT) of the intent to seek PVP, and that the PVP documentation will be forthcoming.

(vi) Following NPL review and agreement of the content with the releasing PMC, the

application will be filed with the AMS PVP Office in Beltsville, Maryland. If licensing of exclusive production rights to a commercial grower will be pursued, the prepared release notice is to be reviewed by ARS-OTT.

(vii) The releasing PMC can finalize and execute the release notice prior to or following completion of the PVP application, providing it contains the provision identified in this section, though it is generally advised to wait until the AMS PVP Office has received the PVP application.

(4) Exclusive Production Rights

(i) With few exceptions, NRCS-developed plant releases have been released on a nonexclusive (public) basis. However, there are compelling reasons to seek PVP and grant exclusive production rights to growers when:

NRCS-developed plant releases are likely to fail in the market place when released on a nonexclusive (public) basis;

Adequate supplies of seed or plant materials are not likely to be produced or marketed on a continuing basis under nonexclusive production and distribution;

Exclusive licensing to one grower or limited licensing to several growers is a reasonable and necessary incentive to encourage the investment of capital and to protect, produce, and distribute adequate seed or plant material on a continuing basis;

The specialized market for the release will not be satisfied without proprietary protection; or

Special production techniques, production areas, or marketing techniques are required.

(ii) The licensing agreement with the commercial producer for exclusive production rights should include a provision that the commercial producer must grow and market a specified amount of seed within a certain time period or the exclusive production rights will be revoked. This ensures that releases achieve their market potential.

(iii) When the release notice has been executed, the NPL will advise ARS-OTT. ARS-OTT will:

Provide oversight to NRCS in the licensing process.

Coordinate the publishing of a notice in the Federal Register of NRCS' intent to exclusively license material.

Negotiate fair licensing terms and conditions with anticipated licensees, considering both the interest of the Government in promoting commercialization of Federal research results and the need to provide a proper reward to the inventor.

Ask each applicant to complete a license application and a detailed marketing and development plan.

Administer licenses of PVP plants made by NRCS.

Collect payments as required by licenses on NRCS PVP plant releases, retain funds sufficient to cover administrative costs associated with licensing and technology transfer activities, and distribute the remaining funds to the NRCS license coordinating office.

Monitor licenses to ensure annual progress reports and fees due are received, maintain patent and license records, and keep NRCS agency personnel advised of activities.

(5) Licensing and License Income

(i) The Federal Technology Transfer Act (FTTA) of 1986 (15 U.S.C. 3710) authorizes income from inventions to be used to pay awards to the inventors and expenses associated with acquiring and administration of patent activities, and to share the balance with the agency. However, collection of license income (royalties) is not required under the PVPA.

(ii) ARS-OTT has been delegated authority by the Secretary of Agriculture to administer the License Program in USDA. The following NRCS guidelines are permissible under ARS authority and guidelines:

License income due to NRCS will be distributed in compliance with FTTA.

Inventors employed by NRCS shall collectively receive the first \$2,000 of license revenue each year and 25 percent of remaining income received by NRCS from each licensed invention up to a maximum of \$150,000 per inventor per year.

(iii) After license income has been paid to the inventors, the NRCS licensing coordinator will ensure any remedial funds are used for technology transfer activities within the PMP.

(iv) The manager of the NPMC serves as the licensing coordinator and will oversee disbursement of royalties to the inventors.

540.36 Management of Plant Releases

A. Increase of Plant Releases

(1) General

An adequate supply of commercially available plant materials (seed or plants) of an active release is vital to the success of NRCS conservation programs. PMCs are responsible for maintaining breeder seed and plant stocks. PMCs will also develop plans for the production of foundation or pre-varietal materials to ensure that high quality seed and plant stocks are available to commercial growers for large-scale increase.

(2) Seed and plant quality

(i) PMCs may choose to distribute seed and plants directly or through a certification process. The decision to release a product through a seed certifying agency should be made in cooperation with the PMC, PM Specialist, and the certifying agency. Cultivars and pre-varietal releases sold commercially as certified seed require distribution under a certification protocol. PMCs should always follow accepted practices for genetic purity; isolation requirements; crop or weed contaminants; field inspection; seed cleaning; and seed quality, purity, germination, etc.

(ii) NRCS cooperates with the State seed certification agency, or equivalent State agency, in establishing standards and meeting State and national requirements in the production and handling of recognized seed classes (for cultivars: Breeder, Foundation, Registered, and Certified; for pre-varietal releases: G0, G1, G2, and G3) with respect to: source of seed stocks; genetic purity; isolation requirements; roguing other crop or weed contaminants; field inspection; seed cleaning; and seed quality, purity, and germination.

(iii) The basic requirements for certified production of many crops are found in the Certification Handbook, published by AOSCA, and supported by the Federal Seed Act. State certification standards are individually established within these guidelines and pertain to the following items:

Isolation requirements - The minimum standards for isolation of Foundation and pre-varietal seed established by AOSCA are to be used as a basic guide for seed-producing crops. These standards may be supplemented by standards or other requirements imposed by the State seed certifying agency or crop improvement association.

Location and size - A location is to be selected where optimum care and isolation can be provided. Examination of prior field use is necessary to determine any conflict with the release to be grown. The size of increase plantings vary according to species, amount of seed or clonal material available, and planned evaluations.

Establishment and cultural and management practices are to be applied that provide optimum production of quality seed or other propagules.

Harvesting, cleaning, and storage - Harvesting, cleaning, and storage are to be accomplished by the most practical method to maximize yield, purity, and viability of seed or plants. Improved technology for harvesting, cleaning, or storage methods should be reported as new technology development (see Section 540.15).

Inventory - An inventory of plants and seed produced and plants and seed on hand are to be maintained as described in Section 540.36(B). This inventory should be adjusted to assure seed is available for commercial growers, research requests, and technology development.

(3) Procedures for Increase

(i) Initial increase is the production of small quantities of seed or other propagules of potentially useful plants. These materials are usually selected on the basis of initial or advanced evaluation identifying them for further testing or for exchange with other PMCs or cooperating State and Federal agencies.

(ii) Field-scale Increase

Field-scale increase is the reproduction of plant materials to be included in field plantings or for use by other PMCs or cooperating State and Federal agencies. Sufficient quantity of seed should be produced to meet the needs of field plantings, conservation field trials, or demonstration plantings.

Field-scale increase plantings should be established according to the standards used in producing Foundation-quality seed or plants.

(iii) Breeder Increase

The production of Breeder seed or plants of PMC releases is an essential part of the overall function and program of a PMC. This production is necessary because it represents the genetic basis of a release from which all subsequent seed is produced.

It is the responsibility of the PMC to maintain Breeder or early generation pre-varietal production or seed stocks for releases where NRCS is the primary plant breeder. In some cases, the PMC may have the primary responsibility to produce Breeder materials for another agency when agreed between the releasing agencies.

PMCs will continue to maintain Breeder production for the releases for which they are responsible until the release is discontinued. See Part 540.36 B(7) for discontinuing a plant release. A PMC may suspend production of foundation/pre-varietal generations indefinitely without discontinuing the release; small amounts of Breeder seed would be required to be available.

Guidelines for maintaining Breeder seed increase fields are provided by the State seed certification agency (or similar agency) based on AOSCA and Federal Seed Act regulations. If such guidelines are not available at the time of release, they will be developed with the State seed certification agency and incorporated into the release notice. Special guidelines unique to a release should also be incorporated into the release notice.

Breeder seed can be made available by the PMC, at no charge, to establish up to 5 acres (or more under special circumstances) for commercial growers to produce their own foundation seed. Where not prohibited, the grower may work with NRCS and the State seed certification agency to have this production block serve as foundation seed for subsequent

production of certified seed.

(iv) Foundation and Pre-Varietal Generation Increase

PMCs will develop plans to ensure the limited production of Foundation and pre-variatal (G0, G1, and/or G2) seed and plant stocks where NRCS is the primary agency and, in some cases, where a cooperative release has occurred. This production is necessary to ensure that high quality seed and plants are available to private growers for establishing commercial scale production. Due to various constraints, including staff and facility resources, the annual production of specific releases, length of time a plant release is maintained in production, and the amount of seed distributed, should be carefully evaluated and adjusted as needed. Adjustments and suspensions of production should be determined and documented in advisory committee minutes. Consider the following when evaluating foundation seed plans:

- Work with universities, soil conservation districts, crop improvement associations, private growers, or other appropriate entities to develop alternatives to PMC production of foundation/early generation pre-variatal seed to supply commercial growers. This could include:
 - "Exclusive Release" procedures
 - Developing agreements where others produce Foundation/pre-variatal seed (outsourcing agreement example under development).
- Suspend production of Foundation/pre-variatal release:
 - When an improved cultivar/pre-variatal release of that species is made within the same geographic region of recommended use.
 - When demand for the release is consistently low.
 - After 10 years following plant release using pre-variatal release procedures.
 - When evidence of genetic drift has occurred. For older releases where original Breeder or G0 pre-variatal stock is not available, studies should be conducted to evaluate potential genetic drift and handled as appropriate.
- Limit allocation of Foundation seed/pre-variatal releases, through established agreements with the State seed certifying agencies, to amounts sufficient to establish 10-40 acres and encourage commercial growers to use first harvests to plant larger acreages as desired.

Guidelines for maintaining Foundation/pre-variatal seed increase fields are provided by the State seed certification agency (or similar agency) based on AOSCA and Federal Seed Act regulations. If such guidelines are not available at the time of release, they will be developed with the State seed certification agency and incorporated into the release notice. Special guidelines unique to a release should also be incorporated into the release notice.

(4) Encouraging Commercial Increase of Releases

(i) The purpose of commercial increase is to make released plant materials available for conservation uses. Arrangements for commercial increase are to be formulated during the release process. The PM Specialist and/or PMC Manager, assisted by the State plant materials committee, has leadership for developing the commercial increase of released plants to ensure that adequate supplies are available.

(ii) Released plant materials are typically provided to growers through Crop Improvement Associations, Foundation Seed Programs, or State seed certification agencies. Agreements with these entities should outline how Foundation/pre-variatal seed and plants should be distributed, how producers will be selected, how pricing will be determined and how funds will be available to the PMC to support future foundation seed production.

(iii) Individual commercial producers can acquire (from NRCS or those named above) foundation or early generation pre-variatal plant materials to establish production fields for the purpose of growing large quantities of seed and plants. The production of these materials is then sold to commercial retail sources or directly to the public for the establishment of conservation plantings.

(iv) Requests for plant materials to be used for commercial increase are to be submitted by letter or formal application to the appropriate PM Specialist or PMC, or to the entity responsible for Foundation/pre-variatal seed distribution. Seed and plant requirements and allocations for commercial increase are to be determined annually.

B. Inventory, Allocation, Exchange, and Distribution

(1) General

All classes of seed and plants produced at PMCs, obtained through exchange or purchased with Federal funds, are Government property. The POMS database is to be used to maintain inventory and track distribution of herbaceous and woody seeds and plants. The PMC will account for all seed and plants produced at the PMC or purchased by the PMC.

(2) Inventorying Plant Materials

(i) Inventories are the responsibility of the PMC Manager. The PMC Manager is responsible for tracking inventory information in the POMS database. A physical inventory of seed and plants is to be taken each year. The inventory record includes species, accession number or

cultivar name, and current germination and purity records. Inventories for all PMC-produced seed and seed purchased for redistribution must be maintained. The PMC Manager may establish an independent procedure for maintaining an inventory of small lots of seed (i.e., packets) or planting stock.

(ii) Inventories should be made available to the PM Specialist. These inventories and information on estimated production serve as a basis for allocating plant materials.

(3) Determining Needs for Plant Materials

(i) Determining the needs for plant materials to be produced or purchased, and the availability of materials in inventory, requires good communication between the PMC Manager and the PM Specialist. Plant materials needs are based on:

- Studies and activities conducted by the PMC.
- Requirements for off-center evaluations.
- Seed increase at the PMC.
- Field plantings, Conservation Field Trials, and demonstration plantings.
- Materials needed for distribution to commercial producers.
- Requests from other PMCs.
- Requests from cooperating agencies and partners.

(ii) The seed or plant needs of the PMC or cooperating agencies are to be determined annually at formal or informal meetings or through correspondence between the PM Specialist or PMC Manager and the cooperating agencies. The need for foundation seed or plant increase can be determined based on previous requirements, anticipated commercial need for the seed or plant, and availability of producers.

(iii) The PM Specialist and the PMC Manager are to prepare a summary of seed and plant needs for a 5-year period and update and extend it annually. The PM Specialist /PMC will send copies of the summary to the State Conservationist's Plant Materials Advisory Committee responsible for the PMC where production is being anticipated. The 5-year estimates are to be agreed upon, revised, extended annually, and incorporated into the PMC's LRP for seed and plant production. If PM Specialists serve more than one PMC, they will coordinate plant materials needs and production among the PMCs in their service area.

(4) Allocation of PMC Produced Materials

(i) Requests for plant materials from a PMC are filled on the basis of available plant materials. Request for plant materials generally are submitted to the PM Specialist responsible for the service area of the PMC. The originator of the request is to be notified by the PM Specialist /PMC if the request cannot be filled. Requests received by PMCs and PM Specialists directly from individuals or organizations outside their service areas are to be coordinated through the PM Specialist serving the area from which the request originated. This procedure ensures that the appropriate PM Specialist is kept informed concerning such requests and permits the PM Specialist to keep abreast of the results of studies in the service area pertaining to NRCS plant materials.

(ii) Requests for foundation quality plant materials to be used for commercial increase should be directed to the PM Specialist. The PM Specialist will determine if the seed will be allocated from the PMC supply, or if the request should be forwarded to another agency, such as a Crop Improvement Association or district seed program, for allocation.

(iii) Foreign requests for seed or plants may be received by a PMC or PM Specialist. The NPMC will assist in arranging for shipping to the foreign country (refer to Section 540.37(B) for procedures). If the NPMC is contacted by a foreign entity for plant material, the NPMC will contact the appropriate PMCs directly to find out if seed or plants are available from the PMC. The quantity of each species shipped to foreign countries is usually limited to amounts necessary for research activities.

(iv) Requests for seed shipments are usually initiated by the PM Specialist using Form NRCS-ECS-001 (Request for Plant Materials Allocation and Distribution, Section 540.97) or by a letter containing the same information. Form NRCS-ECS-9 (Planting Plan for Field, Special, and Increase Plantings, see Section 540.71) may also be used to initiate a seed request for a planting associated with an NRCS field office, or may be attached to NRCS-ECS-001 for additional documentation. Requests may be forwarded through a PM Specialist to the appropriate PMC or directly to the PMC if applicable. Information from NRCS-ECS-001 may also be used to determine future seed or plant production needs as described in Section 540.36(B)(3). The PMC retains Forms NRCS-ECS-001, NRCS-ECS-9, or other documentation and files them with Form NRCS-ECS-596 (Distribution and Delivery Record).

(5) Exchange of Plant Materials

Within the framework of its priorities and study plans, a PMC can request amounts of seed or propagules directly from another PMC. If the source of an accession is known, the PMC Manager may request small quantities of seed or plants directly from the PMC Managers in other service areas within the region. The NTSC PM Specialists are responsible for coordinating requests for large quantities of plant materials among regions if needed.

(6) Distribution of Plant Materials

(i) Domestic plant material shipments from PMCs will be in accordance with all Federal and State laws relative to noxious weeds, quarantine of plants, and nursery certification. Attention should be given to State restrictions on noxious weeds and any restriction on the shipment of certain species of plants to certain States (quarantine restrictions). Often a Nursery Inspection Certificate is required for the shipment of plants over State lines. The State department of agriculture usually regulates such restrictions and issues inspection certificates.

(ii) All foreign plant material shipments are subject to guidelines established by USDA's Animal and Plant Health Inspection Service (APHIS). The NPMC should be contacted regarding restrictions on all foreign seed shipments. Refer to Section 540.37(B).

(iii) A properly executed Form NRCS-ECS-596, Distribution and Delivery Record (Section 540.98) will accompany each shipment of plant materials. Form NRCS-ECS-596 is generated electronically from within the POMS database. The POMS distribution record is populated on the basis of the information on Form NRCS-ECS-001, NRCS-ECS-9, or a request letter. Accession numbers (both NRCS 9-million number and PI number, as applicable), scientific, cultivar or release name, and common names identify items shipped. Seeds are identified by lot number, year produced, and results of purity and germination tests. Plants are identified by age and type of the material. Form NRCS-ECS-596 is processed as follows:

Complex forms.

Software, applications, databases, etc.

Two copies are sent with the shipment or under separate cover, where one copy is signed by the recipient and returned to the PMC and the other copy retained for the recipient's file.

One copy with attached Form NRCS-ECS-001 will remain in the PMC's file until the signed receipt copy is returned, at which time it can be replaced.

(7) Procedures for Discontinuation of a Release

(i) When it is determined appropriate by the State Conservationist's Plant Materials Advisory Committee that an NRCS conservation plant release is no longer needed, NRCS will formally discontinue maintenance of Breeder and Foundation seed of the PMC plant release and discontinue supporting and recommending the plant for conservation use.

(ii) The PMC Plant Materials Technical Committee (or equivalent) will review current PMC releases and make recommendations to the State Conservationist's Plant Materials Advisory Committee on need and desirability to discontinue a prior plant release. This request shall be done in writing using the "Request to Discontinue Production of a Plant Materials Release" worksheet to guide and document their recommendations (Section 540.99). Releases may be discontinued for the following reasons:

No or Limited Foundation Seed or Plant Requests - If no requests have been received in the last 5-10 years, consideration should be given to discontinuing the release. As part of the consideration process, the PMC Plant Materials Technical Committee should evaluate and document if another plant or source of plant material is available to address natural resource issue(s) for which the release was made. Where requests are few, seed and/or plant production should be commensurate with requests. For releases of native species where demand is being met from wildland collections, as is the case with many shrubs and trees, consideration should be given to maintaining the release name and type, but identifying the original collection site area as the source of Breeder or G0 seed for the named type material. Ability to utilize this latter process would require good collection site information, clear site definition, access to the site, and no intentional genetic manipulation or bulking of multiple source materials of the release.

No Commercial Production - If no commercial production of a release has occurred in the last 5 years, consideration should be given to discontinuing the release. If the release is recent, determine and document if adequate promotion of the material has occurred.

Replaced by Better Releases - When 2 or more releases are available for a species and both are recommended for the same purpose in the same geographic area or eco-region, consideration should be given to discontinue one or more of the releases.

Extensive comparative trials, using Field Plantings and ICSTs, over a 5-10 year period should be used to determine and document relative performance. NRCS should promote the most appropriate plant to solve a conservation problem.

Considered Invasive and Potentially Harmful to the Environment - All plant materials releases are evaluated for their potential to harm the environment prior to release. If a new scientific study indicates a potential problem with an NRCS release, consideration should be given to discontinuing the release.

(iii) The review for discontinuing a release should occur (at a minimum) when a PMC LRP is revised and updated. Any recommendation to discontinue a release should include documented consultation with all who cooperated in the original release and with distribution agencies, such as crop improvement associations. Documentation should note their agreement to discontinue the release. If NRCS was a secondary releasing agency, discussions should take place with the primary agency to consider jointly discontinuing the release. If the primary releasing agency does not wish to discontinue the plant release, NRCS should proceed

with documentation and the worksheet in order to disassociate the agency from the plant release. This is especially important when the species may be considered invasive.

(iv) Documentation (the worksheet in Section 540.99 along with an EE or other appropriate paperwork) for discontinuing a plant release is sent to the NPL for final approval.

(v) Upon final approval, the PMC is strongly encouraged to send a notice to NRCS and all partner offices using the release informing them of the discontinuation. Additionally, all reference of the discontinued release should be removed from the FOTG, Web sites, and publications as they are updated.

540.37 Import and Export of Plant Germplasm

A. General

Import and export rules differ according to the types of plant material (e.g., seeds, cuttings, live plants) and foreign countries involved. All transport of germplasm should be coordinated through the NPMC, which has ready access to APHIS personnel and information on required import/export documents.

B. Exporting Germplasm to Foreign Countries

(1) Researchers in foreign countries may request plant materials from the PMP. Requests may be received by any PM Specialist or PMC. The PM Specialist or PMC should first contact the NPMC to determine what restrictions there are on shipping the requested germplasm and provide the following information:

- (i) The form of the germplasm to be shipped (seed or plants – Note: the restrictions for the import of plants into foreign countries are typically different than those for seed).
- (ii) Scientific and common names of the species to be exported.
- (iii) Origin of seed to be exported (State and country where it was produced).
- (iv) Country of destination.
- (v) Amount of seed to be shipped.

(2) The NPMC will check with APHIS as to any import restrictions for the species going into the destination country. If there are import restrictions, the recipient of the seed in the foreign country may need to obtain an import permit from their plant quarantine office. This import permit should be sent directly to the NPMC. The import permit may require additional declarations that the distributing PMC must meet before shipping seed. All PMCs should use extreme caution in exporting plant materials that may have invasive tendencies or that may have harmful effects on the environment of a foreign country. Guidelines for invasiveness and environmental considerations may be found in Sections 540.33(A)(3) and 540.83.

(3) A phytosanitary certificate from APHIS may be required for foreign shipment; if one is needed, the NPMC will notify the PMC to send the seed to the NPMC. A completed D&D form should be included. The NPMC will obtain the phytosanitary certificate from APHIS and ship the material to the foreign recipient.

(4) There may be situations where the seed being exported does not need a phytosanitary certificate. In these cases, the NPMC will inform the PMC that the seed may be shipped directly from the PMC to the recipient.

C. Importing Germplasm from Foreign Countries

(1) A PMC wishing to import plant material from a foreign country should contact the NPMC before attempting to obtain material. The PMC will need to provide the following information to the NPMC so import permit requirements can be determined:

- (i) The form in which the germplasm is to be shipped (seed or plants).
- (ii) Scientific and common names of the species to be imported.
- (iii) Origin of seed to be imported (country or locality it was collected or produced).
- (iv) How the material will be used (e.g., research).
- (v) Any known restrictions on the use of the material because of intellectual property rights.
- (vi) Amount of material to be shipped.

(2) The NPMC will check with NPGS-GRIN to determine if the material is already available in the United States from a public or private germplasm collection. If it is not available domestically, the NPMC will consult with the APHIS-Permit Unit to determine the entry requirements for introducing the species from a foreign country. The NPMC will obtain an import permit and other required documentation from the APHIS-Permit Unit for the requesting PMC if there are import restrictions.

(3) All PMCs should use extreme caution when importing plant materials that may have invasive tendencies or have harmful effects on the environment. Species which are known to be invasive in the United States will not, under any circumstances, be imported into country. For those species which are new to the United States, an extensive evaluation of potential spread and invasiveness must be conducted on the PMC prior to moving the material off the PMC.

Guidelines for assessing invasiveness and environmental considerations may be found in Sections 540.33(A) and 540.83.

(4) Shipment of plant materials into the United States: The requesting PMC should send an import permit (if required) to the foreign plant source for inclusion with the seed shipment to the United States. Packages sent to the United States must also include identification of the materials, country of origin, the sender (name and address), and the intended recipient. Some shipments may also require a phytosanitary certificate issued by the exporting country.

(5) Hand-carrying plant materials into the United States: Because of the potential costs involved in hand-carrying germplasm into the United States, APHIS recommends that travelers consider mailing plants from foreign countries whenever possible. If travelers know what material will be brought back into the country, the NPMC can obtain any required permits prior to an overseas trip. If a port of entry is not equipped to inspect the imported material, it is the importer's responsibility to pay for shipment of the material to the appropriate inspection station.

(6) For material that must be quarantined prior to release into the United States, the NPMC will work with APHIS and the requesting PMC on a case-by-case basis.

Subpart D - Exhibits

540.50 Example of State Plant Materials Long Range Plan

[Click here for a copy of an Example of State Plant Materials Long Range Plan](#)

540.51 Example of a PMC Long Range Plan

[Click here for a copy of an Example of a PMC Long Range Plan](#)

540.52 Recommended training for Plant Materials (PM) Staff

[Click here for a copy of the Recommended Training for PM Staff](#)

540.53 Working with Native Americans-American Indians and Alaska Natives

[Click here for a copy of the Working with Native Americans-American Indians and Alaska Natives](#)

540.54 Reports and Information Required from PMCs Each Year

[Click here for a copy of the Reports and Information Required from PMCs](#)

540.55 Safety and Health Legislation and Regulations Pertinent to PMC Operations

[Click here for a copy of the Safety and Health Legislation and Regulations Pertinent to PMC Operations](#)

540.56 Outline for Safety Inspections at PMCs

[Click here for a copy of the Outline for Safety Inspections at PMCs](#)

540.57 Reserved

540.58 Example of a Prescribed Burn Plan for a Plant Materials Center

[Click here for a copy of an Example of a Prescribed Burn Plan for a Plant Materials Center](#)

540.59 Example of a PMC Business Plan

[Click here for an Example of a PMC Business Plan](#)

540.60 Example of a PMC Workload Analysis

[Click here for an Example of a PMC Workload Analysis](#)

540.61 Guidelines for Program Evaluations or Other Reviews of a Plant Materials Program

[Click here for a copy of the Guidelines for Program Evaluations or Other Reviews of a Plant Materials Program](#)

540.62 Checklist for Development of Technology Products

[Click here for a copy of the Checklist for Development of Technology Products](#)

540.63 Typical Process for Product Development

[Click here for a copy of the Typical Process for Product Development](#)

540.64 Sample Project Statement for the Plant Materials Program

[Click here for a copy of the Sample Project Statement for the Plant Materials Program](#)

540.65 List of National Projects

[Click here for a copy of the List of National Projects](#)

540.66 Details of Assigning Numbers for Studies and Plantings

[Click here for a copy of the Details of Assigning Numbers for Studies and Plantings](#)

540.67 Example of a Study Plan for the Plant Materials Program

[Click here for a copy of an Example of a Study Plan for the Plant Materials Program](#)

540.68 Resources for Preparing Literature Reviews

[Click here for a copy of the Resources for Preparing Literature Reviews](#)

540.69 Types of Technology Products

[Click here for a copy of the Types of Technology Products](#)

540.70 Form NRCS-ECS-9, Planting Plan for Field, Special and Increase Plantings

[Click here for a copy of Form NRCS-ECS-9](#)

540.71 Form NRCS-ECS-14, Plant Materials Program Field Planting or Study Plan Assistance Notes

[Click here for a copy of Form NRCS-ECS-14](#)

540.72 Form NRCS-ECS-600, Establishment of Field, Special and Increase Plantings

[Click here for a copy of Form NRCS-ECS-600](#)

540.73 Reserved

540.74 Reserved

540.75 Example of a Technical Notes

[Click here for a copy of an Example of a Technical Notes](#)

540.76 Example of a Plant Fact Sheet

[Click here for a copy of an Example of a Plant Fact Sheet](#)

540.77 Example of a Plant Guide

[Click here for a copy of an Example of a Plant Guide](#)

540.78 Checklist for Plant Selection Studies

[Click here for a copy of the Checklist for Plant Selection Studies](#)

540.79 The **ESCOP Policy Statement for Developing and Releasing Improved Plants** is **obsolete**. This policy is no longer considered an active policy document of ESCOP and ESCOP has decided not to update it.

540.80 Form NRCS-ECS-580, Seed and Plant Collection Information

[Click here for a copy of Form NRCS-ECS-580](#)

540.81 Reserved

540.82 Reserved

540.83 Worksheet for Documenting an Environmental Evaluation of NRCS Plant Releases

[Click here for a copy of the Worksheet for Documenting an Environmental Evaluation of NRCS Plant Releases](#)

540.84 Example of Information Found in a Documentation of Selection

[Click here for an Examples of Information Found in a Documentation of Selection](#)

540.85 Summary of Plant Release Types and Criteria for Release

[Click here for a copy of the Summary of Plant Release Types and Criteria for Release](#)

540.86 AOSCA Guidelines for Release Types and Development Tracks

[Click here for a copy of the AOSCA Guidelines for Release Types and Development Tracks](#)

540.87 Conservation Plant Release Review Worksheet

[Click here for a copy of the Conservation Plant Release Review Worksheet](#)

540.88 General Outline for an Official Plant Release Notice for All Release Types

[Click here for a copy of the General Outline for an Official Plant Release Notice for All Release Types](#)

540.89 Example of an Official Plant Release Notice for a Cultivar Release

[Click here for a copy of an Example of an Official Plant Release Notice for a Cultivar Release](#)

540.90 Example of an Official Plant Release Notice for a Tested Release

[Click here for a copy of an Example of an Official Plant Release Notice for a Tested Release](#)

540.91 Example of an Official Plant Release Notice for a Selected Release

[Click here for a copy of an Example of an Official Plant Release Notice for a Selected Release](#)

540.92 Example of an Official Plant Release Notice for a Source-Identified Release

[Click here for a copy of an Example of an Official Plant Release Notice for a Source-Identified Release](#)

540.93 Example of an Official Plant Release Notice for a Germplasm Release

[Click here for a copy of an Example of an Official Plant Release Notice for Germplasm Release](#)

540.94 Example of a Release Brochure

[Click here for a copy of an Example of a Release Brochure](#)

540.95 Application for Seed Storage at the National Center for Genetic Resources Preservation

[Click here for a copy of an Application for Seed Storage at the National Center for Genetic Resources Preservation](#)

540.96 Seed Storage Policy of the National Center for Genetic Resources Preservation

[Click here for a copy of the Seed storage Policy of the National Center for Genetic Resources Preservation](#)

540.97 Form NRCS-ECS-001, Request for Plant Materials Allocation and Distribution

[Click here for a copy of Form NRCS-ECS-001](#)

540.98 Form NRCS-ECS-596, Distribution and Delivery (D&D) Record (Sample)

[Click here for a copy of Form NRCS-ECS-596](#)

540.99 Worksheet to Discontinue PMC Production of a Plant Materials Release

[Click here for a copy of the Worksheet to Discontinue PMC Production of a Plant Materials Release](#)

Subpart A - Plant Materials Reporting

541.0 General

A. The NPL maintains overall responsibility of information management activities in the PMP. A National PM Information Steering Committee may be appointed by the NPL on an ad hoc basis and provides recommendation and assistance to the information needs of the Program. At a minimum, the committee will consist of a NTSC PM Specialist, a PMC Manager, a PM Specialist, the NPMC Manager, the PM Webmaster, and the PM Information Coordinator.

B. All information management activities will conform to agency procedures and guidelines. All hardware, software, and procedural changes that impact information management activities nationally will be cleared through the PM Information Coordinator and changes reviewed and issued by NHQ as appropriate. NRCS policy should be followed regarding computer security, passwords, etc., according to the General Manual.

541.1 Plant Materials Operations and Management System (POMS)

A. Description and Use

(1) The POMS database is the primary system for recording plant materials management, activities and accomplishments by PMCs and PM Specialists. The objective of POMS is to facilitate rapid and cost-effective accumulation, processing, and dissemination of data to assist in realizing NRCS goals and objectives. Each PMC or PM Specialist is responsible for recording data into their POMS database and for creating exports of their database to populate the National POMS database.

(2) The POMS database consists of the following components:

- (i) **Accessioning** – records source information on seed and plant collections.
- (ii) **Inventory** – maintains information on seed and vegetative materials; generates inventories and usage reports.
- (iii) **Distribution and Delivery** – creates delivery records for the distribution of seed and vegetative materials; generates ECS-596 forms.
- (iv) **Studies, Field Plantings, and Conservation Field Trials** – records basic information on each type of study and planting.
- (v) **Releases** – includes information on past and pending conservation plant releases.
- (vi) **Publications** – records citations and information on technical and popular documents prepared by plant materials staff.
- (vii) **Presentations** – records information on formal presentations, tours, training sessions, and field days by plant materials staff.
- (viii) **Seed and Plant Production** – records information on release production at the PMC and commercially, foundation seed and plant maintenance for releases at PMCs, and other seed and plant production at PMCs.
- (ix) **Customers Assisted** – records technical assistance provided to NRCS offices, cooperators, and the general public.
- (x) **Address Book** – used to maintain addresses for the Distribution and Delivery module and serve as a "rolodex" for the office.
- (xi) **PMC/ PM Specialist Operations** – Includes staff information, time spent on activities, and other items relevant to PM operations.

B. Entering data into the POMS database

(1) POMS is a Microsoft Access database which utilizes forms for a user-friendly interface for data entry and reporting. Knowledge of Access is not required.

(2) PM staff should ideally update the information in POMS as it occurs to ensure completeness of the data. Data entry should also be as up-to-date as possible prior to the end of each quarter, when a POMS export is run and sent to the NPMC. All primary and secondary fields in POMS must be filled in for a complete record of activities and accomplishments. Primary fields might include a publication citation. Secondary fields, in this case, would include related species and releases, related studies, NRCS programs, resource concerns, etc.

(3) Training sessions on how to use POMS will be conducted periodically. These sessions are usually done over Internet conferencing and are conducted by the NPMC Manager, PM Information Coordinator, or NPL. Contact one of these persons if additional assistance is needed. Additional information in the form of user guides or other guidance is distributed as available or needed.

C. POMS Exports

(1) PMC staff and PM Specialists will create an export of their POMS database quarterly and send it to the PM Information Coordinator or the manager of the NPMC (or as instructed by the NPL). Instructions on the creation of exports are found within the POMS database.

(2) POMS quarterly exports copies of all new, updated and deleted records from the PMC or PM Specialist database to an export database. All records in the database are then marked as "exported." The next export will repeat this process of copying all new, updated, and deleted

records. It is essential that all quarterly exports which are created are sent to the NPMC for consolidation into the national POMS database.

(3) The due date for the quarterly export is the last business day of the first, second, and third quarters of the fiscal year. The due date for the annual (and final) export of the fiscal year is the second Friday in September of each year. The exact date in September will vary each year.

(4) The PM Information Coordinator or the Manager of the NPMC will consolidate POMS exports from each PMC and PM Specialist and import data into the national POMS database.

(5) The Total Export option in POMS is used when requested by the PM Information Coordinator or the Manager of the NPMC for data maintenance purposes or for rebuilding databases.

D. Utilization of Data

POMS information gets used in many different ways and at many different levels.

(i) **Locally at the PMC or PM Specialist Level** – Maintenance of accessioning and seed and plant inventory data is critical for recording the maintenance and use of Government-processed seed. Information on studies, seed and plant production, and plant materials products such as releases, publications, and presentations gets recorded so there is a history of what was done by a PMC or PM Specialist. The Address Book can be used to improve efficiencies with mailings and for communicating with partners and others.

(ii) **Nationally** – All data is combined nationally into the national POMS database. This database is maintained by the NPMC. Information on studies, releases, and publications gets processed to populate PMCs and the national program Web sites. Several standard reports, such as the "Plant Materials Staff Directory" and the "Improved Conservation Plants Releases by NRCS and Cooperators," are generated directly from the national POMS. Data is also used to assess the performance of PMCs and to generate the Performance Index annually (see Section 541.2(C)).

(iii) **By NRCS, USDA, and other groups** – POMS information is used to generate reports on specific topics for NHQ and USDA, answer questions from the Office of Management and Budget (OMB) and Congress, and is used to generate reports needed to support budget requests and Congressional hearings.

(iv) **Requests for custom queries or reports from individual databases or the national POMS database** may be directed to the NPMC Manager or PM Information Coordinator.

E. Maintenance and Development of POMS

(1) The NPMC Manager and/or PM Information Coordinator have primary responsibility for the maintenance and development of the POMS database. Additional PM staff may be involved in the overall design for future development of POMS. The current architecture of the POMS database can be found in Section 541.10.

(2) Database or data maintenance questions or issues should be directed to the NPMC Manager or PM Information Coordinator.

541.2 Plant Materials Performance Index

A. General

The goal of the Plant Materials Performance Index is to monitor the performance of each PMC and PM Specialist to ensure they are engaged in all facets of the program.

B. Content

(1) The Index is scaled on a total of 100 and accounts for differences in full-time equivalents among PMCs. Each task or accomplishment on the Index is assigned a point value. There are 9 major categories of the Index which reflect the majority of activities and accomplishments by PMCs. Each of these sections is capped at a maximum value. Section 541.11 includes these categories, a description, and their maximum point value.

(2) In addition to the "capped" score out of 100, the total uncapped score will also be calculated and multiplied by the capped score to achieve a cumulative score. The cumulative score is a reflection of the overall productivity of each PMC.

(3) The content of the Index is reviewed annually by the National Plant Materials Technical Committee, and minor modification to the Index are made to ensure that it accurately and equitably captures the activities and accomplishments of the PMP.

C. Use of the Index

(1) The scores from each PMC are tallied and an average is calculated for the entire Program. This Program average is used for performance reporting to NHQ and OMB.

(2) The Index can be used by PMC Managers or by States with PMCs to identify strengths and weaknesses in a program and areas for specific improvement. Weaknesses, such as lack of written technical documents, can be addressed in future years to help strengthen a PMC's overall program. The Index can be used by the NPL to assess the effectiveness of each PMC and for determining performance-based awards or funding for the next fiscal year's budget allocations to PMCs.

541.3 NRCS Reporting through the Performance Results System

The Performance Results System (PRS) is the agency system for recording specific performance activities. PM reports the number of new release and number of technical documents developed and transferred. These numbers should be reported a minimum of each quarter and inputted into the Web-based PRS either by the PMC Manager or the State office.

541.4 Plant Materials Reports

A. Plant Materials Progress Report of Activities

(1) General

(i) It is essential that all NRCS offices and others interested in PM work be informed of progress and new developments on a frequent basis. The PM Progress Report will contain an interpretive summary of significant PM-related activities. This interpretive summary describes why the activity or study was undertaken, the progress or results of the activity or study, and the application or impact to NRCS field activities or natural resources activities.

(ii) The PMC Manager and PM Specialist prepare the report. The report provides information on new plant materials developments to NRCS field offices, cooperating agencies, and groups. The Plant Materials Progress Report of Activities should be concise, relevant to field staff (what new information was found), is typically about 4 pages long (no more than 8 pages), and should be oriented to conveying results of PMC activities. This report should be attractive and easy to read. Section 541.12 is an example of a Plant Materials Progress Report of Activities.

(2) Content

The PM Progress Report may include the following sections:

Header – Include the USDA-NRCS logo, identify the title, office, office contact information, and date of the document.

Summaries – Provide brief summaries of some of the major activities or findings from the previous year. Put the most significant accomplishments towards the front of the document. Utilize pictures and graphs effectively to tell the story. Emphasize new findings and information of relevance to the PMC's customers. Special consideration should be given to describe the impact that the study will have to field offices and to implementing conservation practices. If there is a technical article available on the Internet, provide a link to that document. Do not include summaries of every single PMC study or activity, especially those items which had minimal progress or are of lower importance to PMC customers.

References – Provide the title for significant new documents not already referenced in the report. Provide a descriptive sentence or two on how this document might be useful and provide a URL address.

General Information – Towards the end of the document, remind readers what the PMC does, major changes at the PMC, priorities at the PMC, staffing, etc. This section should be brief.

Do not provide detailed explanations of experimental design, vague results of initial evaluations, complex tables or charts, and lengthy descriptions of facility upgrades. Avoid the use of study numbers and other terms which may be unfamiliar to non-PMP readers.

(3) Frequency

The Plant Materials Progress Report of Activities is to be developed and published annually. The report will be compiled on a calendar year basis and be prepared and distributed no later than January 15 of the year following the report year.

(4) Distribution

(i) Minimum distribution includes the State office(s), appropriate field offices, all other PMCs and PM Specialists, NTSC PM Specialists, and the NPL. Other suggested distribution includes: NTSCs, the National Association of Conservation Districts, Resource Conservation and Development offices, cooperators, and elected officials.

(ii) An electronic file should be sent to the PM Webmaster for archiving and for inclusion on the Internet.

(iii) The issuing PMC is to maintain file copies of each report and an electronic copy of the file.

B. PMC Annual Technical Report

(1) General

The PMC Annual Technical Report (ATR) summarizes studies and activities for a PMC in a technical format. It serves as a reference source for work done by the Center. The summary provides the basis for making needed adjustments to the study activities in the coming year and serves as a source of information for the PM Progress Report. The PMC staff, under the direction of the Manager, prepares the report with input from the PM Specialists, as appropriate.

(2) Contents

The PMC ATR will contain, at a minimum:

- Study titles, numbers, and brief description of the study;
- Summarized data presented in tabular form for each study for the reporting period;
- and
- A brief summary (1/2 page or less) of the tabular data for each study.

(3) Frequency

The PMC ATR is prepared annually. The technical report is compiled on a calendar year basis and is prepared by May 1 of the year following the report year.

(4) Distribution

(i) Minimum distribution includes the PM Specialist(s) which serves the PMC, other PMCs and PM Specialists with closely related activities, NTSC PM Specialists, and the NPL. Other suggested distribution includes cooperators that might have a direct interest in the technical nature of the study.

(ii) An electronic file should be sent to the PM Webmaster for archiving and for inclusion on the Internet.

(iii) The issuing PMC is to maintain file copies of each report and an electronic copy of the file.

C. Periodic Reports

(1) General

The NPL or PM Information Coordinator may be required to compile Program information periodically. PMCs or PM Specialists may also need to prepare progress reports or summaries of studies or activities.

(2) Types and Formats of Periodic Reports

(i) Examples of recurring reports which may need to be compiled include:

Outreach Activities - support provided to underrepresented or disadvantaged groups.

Civil Rights issues - consists of Civil Rights concerns and violations.

Pesticide Usage and Disposal - quantities and dollars spent or projected to be spent on pesticide or chemical disposal.

PMC Security - updates of progress made on security assessments.

Reports or information for management or Congress - topics may include new releases, performance goals and updates, and implementation of Program Strategic Plans.

Progress Reports - might include project or study summaries, updates on reimbursable activities, and facility upgrades.

(ii) Formats for these reports are usually determined by the person or office compiling the report, or by the person or office requesting the report.

(3) Frequency

The frequency and due dates of these reports depend on the type of report and how much information is requested.

(4) Distribution

Distribution depends on the type of report and, in part, by the person preparing the report or the person who requested the information.

Subpart B - Exhibits

541.10 POMS Database Architecture

[Click here for a copy of the POMS Database Architecture](#)

541.11 Plant Materials Performance Index

[Click here for a copy of the Plant Materials Performance Index](#)

541.12 Example of a Progress Report of Activities

[Click here for a copy of an Example of a Progress Report of Activities](#)

Part 542 - Plant Science Reference Section

542.0 Acronyms Found in NPMM

[Click here for a copy of the Acronyms Found in NPMM](#)

542.1 Glossary of Terms For Use in Plant Materials

[Click here for a copy of the Glossary of Terms For Use in Plant Materials](#)

542.2 Plant Nomenclature

[Click here for a copy of the Plant Nomenclature](#)

542.3 Guidelines for Preparing Botanical Specimens

[Click here for a copy of the Guidelines for Preparing Botanical Specimens](#)

542.4 Photographing Plant Materials

[Click here for a copy of the Photographing Plant Materials](#)