

Scenario Worksheet

Practice and Scenario Description:	
Information Type	Data
Region	Mid Atlantic
State	New Jersey
Discipline Group	Agronomy
Practice Code/Name	590 - Nutrient Management
Scenario ID	1
Scenario Name	Basic NM System

Scenario Description	<p>A basic nutrient management system is implemented on over 40 acres of cropland or hayland where there is no manure application. Implementation results in the proper rate, source, method of placement, and timing of nutrients. Typical installation involves soil testing, analysis, consultant services that provide nutrient recommendations and an associated nutrient budget, and record keeping. Nitrogen-urease inhibitors are used for surface applied urea products. The technical recommendations are based on land grant university recommendations or crop removal rates. Producer records demonstrating implementation of the 4 R's of the nutrient management criteria are required.</p> <p>Associated practices: Conservation Crop Rotation (328), Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed (329), Cover Crop (340), Filter Strip (393), Irrigation Water Management (449), Drainage Water Management (554), and Integrated Pest Management (595).</p>
Before Practice Situation	<p>Cropland or hayland with no manure application either is not practicing any nutrient management or the practices do not meet the standard. Soil tests are not completed on a regular basis and fertilizer applications are not based on nutrient recommendations. Improper management has caused water quality degradation through excess nutrients transported through runoff and soil erosion to surface waters and/or to groundwater through leaching. Urea products are typically surface applied without inhibitors increasing losses. Soil quality may also be degraded by excess or inadequate nutrients.</p>
After Practice Situation	<p>A nutrient management system that meets the NRCS 590 standard is developed on over 40 acres of cropland or hayland. The development and implementation of a nutrient management plan benefits plant productivity and reduces off-site degradation by maximizing nutrient use efficiency by the crop and minimizing the potential of nutrient losses in leaching and runoff caused by over-application. A nutrient budget is developed for each field based on soil test analysis and land grant university or crop removal rates. Pre-plant soil tests are used to determine the annual nutrient budget and post-harvest soil and/or tissue tests are used to re-evaluate the adequacy of the plant's nutrient recommendations in meeting crop needs while minimizing phosphorus application and residual nitrogen. Post-harvest testing ensures proper utilization of nutrients thus reducing the potential for off-site impacts. Urease inhibitors are used for surface applications of urea products to reduce losses. The producer maintains records that are provided annually of the current soil tests, analysis, amount of application, and forms and rates of nutrients for each field, including post-harvest analysis. Management results in nutrient applications that minimize nutrient runoff and leaching, and/or the buildup of excess nutrient concentrations.</p>
Scenario Feature Measure	Per acre of applied management
Scenario Unit	Acre
Scenario Typical Size	40

no need to list associated practices

Cost Summary:		
Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$441.79	\$11.04
Equipment/Installation	\$26.16	\$0.65
Labor	\$256.54	\$6.41
Mobilization	\$0.00	\$0.00
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$724.49	\$18.11

Scenario Worksheet

Practice and Scenario Description:	
Information Type	Data
Region	Mid Atlantic
State	New Jersey
Discipline Group	Agronomy
Practice Code/Name	590 - Nutrient Management
Scenario ID	2
Scenario Name	Basic Organic NM System

Scenario Description	<p>A basic nutrient management system for organic production is implemented on over 40 acres of organic cropland or hayland. Implementation results in the proper rate, source, method of placement, and timing of organic nutrients. Typical installation involves soil and manure testing, analysis, consultant services that provide nutrient recommendations and an associated nutrient budget, and record keeping. The technical recommendations are based on land grant university recommendations or crop removal rates. Producer records demonstrating implementation of the 4 R's of the nutrient management criteria are required. Effective nutrient management enables organic producers to effectively utilize organic fertilizers, manure, and/or compost appropriately, which improves soil quality and minimizes runoff of nutrients from fields to surface water.</p> <p>Associated practices: Conservation Crop Rotation (328), Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed (329), Cover Crop (340), Filter Strip (393), Irrigation Water Management (449), Drainage Water Management (554), and Integrated Pest Management (595).</p>
Before Practice Situation	<p>Nutrient management practices are either not observed or do not meet the standard on the organic cropland or hayland. Organic cropland or hayland either is not practicing any nutrient management or the practices do not meet the standard. Soil tests are not completed on a regular basis and organic fertilizer applications and amendments are not based on nutrient recommendations. Improper management has caused water quality degradation through excess nutrients transported through runoff and soil erosion to surface waters and/or to groundwater through leaching. Soil quality may also be degraded by excess or inadequate nutrients.</p>
After Practice Situation	<p>An organic nutrient management system that meets the NRCS 590 standard and NOP regulations is developed on over 40 acres of organic cropland or hayland. The development and implementation of a nutrient management plan benefits plant productivity and reduces off-site degradation by maximizing nutrient use efficiency by the crop and minimizing the potential of nutrient losses in leaching and runoff caused by over-application. A nutrient budget is developed for each field based on soil test analysis and land grant university or crop removal rates. Pre-plant soil tests are used to determine the annual nutrient budget and post-harvest soil and/or tissue tests are used to re-evaluate the adequacy of the plant's nutrient recommendations in meeting crop needs while minimizing phosphorus application and residual nitrogen. Post-harvest testing ensures proper utilization of nutrients thus reducing the potential for off-site impacts. The producer maintains records that are provided annually of the current soil tests, analysis, amount of application, and forms and rates of nutrients for each field, including post-harvest analysis. Specialized training is required by attending annual workshops and/or conferences. Management results in nutrient applications that minimize nutrient runoff and leaching, and/or the buildup of excess nutrient concentrations.</p>
Scenario Feature Measure	Per acre of applied management
Scenario Unit	Acre
Scenario Typical Size	40

no need to list associated practices

Cost Summary:		
Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$107.63	\$2.69
Equipment/Installation	\$52.32	\$1.31
Labor	\$460.80	\$11.52
Mobilization	\$0.00	\$0.00
Acquisition of Technical Knowledge	\$326.52	\$8.16
Foregone Income	\$0.00	\$0.00
Total	\$947.27	\$23.68

Scenario Worksheet

Practice and Scenario Description:	
Information Type	Data
Region	Mid Atlantic
State	New Jersey
Discipline Group	Agronomy
Practice Code/Name	590 - Nutrient Management
Scenario ID	3
Scenario Name	Small Farm/Diversified
Scenario Description	<p>A nutrient management system is implemented on a small/diversified farm such as community supported agriculture farms, truck farms, and market gardens, where numerous variable crops are grown on relatively small acreages (0.25 to 10 acres) and multiple harvests per year. Due to the variability of crops and small acreage, a more intensive and diversified management approach is necessary to ensure proper nutrient utilization. Implementation results in the proper rate, source, method of placement, and timing of nutrients. Typical installation involves soil testing, analysis, consultant services that provide nutrient recommendations and an associated nutrient budget, and record keeping. The technical recommendations are based on land grant university recommendations or crop removal rates. Producers typically attend one workshop to acquire the knowledge required to implement the practice. Producer records demonstrating implementation of the 4 R's of the nutrient management criteria are required.</p> <p>Associated practices: Conservation Crop Rotation (328), Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed (329), Cover Crop (340), Filter Strip (393), Irrigation Water Management (449), Drainage Water Management (554), and Integrated Pest Management (595).</p>
Before Practice Situation	Nutrient management practices are either not observed or do not meet the standard. Soil tests are not completed on a regular basis and fertilizer applications are not based on nutrient recommendations. Improper management has caused water quality degradation through excess nutrients transported through runoff and soil erosion to surface waters and/or to groundwater through leaching. Soil quality may also be degraded by excess or inadequate nutrients.
After Practice Situation	A nutrient management system that meets the NRCS 590 standard is developed on a small/diversified farm. Producer has acquired necessary technical knowledge to implement according to 590 standard. The development and implementation of a nutrient management plan benefits plant productivity and reduces off-site degradation by maximizing nutrient use efficiency by the crop and minimizing the potential of nutrient losses in leaching and runoff caused by over-application. A nutrient budget is developed for each field or "crop block" based on soil test analysis and land grant university or crop removal rates. The producer maintains records that are provided annually of the current soil tests, analysis, amount of application, and forms and rates of nutrients for each field or "crop block", including post-harvest analysis. Management results in nutrient applications that minimize nutrient runoff and leaching, and/or the buildup of excess nutrient concentrations.
Scenario Feature Measure	Per small/diversified farm
Scenario Unit	Each
Scenario Typical Size	1

Cost Summary:		
Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$101.64	\$101.64
Equipment/Installation	\$0.00	\$0.00
Labor	\$376.34	\$376.34
Mobilization	\$0.00	\$0.00
Acquisition of Technical Knowledge	\$326.52	\$326.52
Foregone Income	\$0.00	\$0.00
Total	\$804.50	\$804.50

Scenario Worksheet

Practice and Scenario Description:	
Information Type	Data
Region	Mid Atlantic
State	New Jersey
Discipline Group	Agronomy
Practice Code/Name	590 - Nutrient Management
Scenario ID	4
Scenario Name	Basic NM system with manure

Scenario Description	<p>A basic nutrient management system is implemented on over 40 acres of cropland or hayland where manure or compost is applied in addition to commercial fertilizer. Implementation results in the proper rate, source, method of placement, and timing of nutrients. Typical installation involves soil and manure testing, analysis, consultant services that provide nutrient recommendations and an associated nutrient budget, and record keeping. Nitrogen-urease inhibitors are used for surface applied urea products. The technical recommendations are based on land grant university recommendations or crop removal rates. Risk assessments including phosphorus index and nitrogen index are completed with applications of manure. Producer records demonstrating implementation of the 4 R's of the nutrient management criteria are required.</p> <p>Associated practices: Conservation Crop Rotation (328), Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed (329), Cover Crop (340), Filter Strip (393), Irrigation Water Management (449), Drainage Water Management (554), and Integrated Pest Management (595).</p>
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Before Practice Situation	<p>Cropland or hayland with manure or compost application either is not practicing any nutrient management or the practices do not meet the standard. Soil and manure tests are not completed on a regular basis and fertilizer applications are not based on nutrient recommendations. Improper management has caused water quality degradation through excess nutrients transported through runoff and soil erosion to surface waters and/or to groundwater through leaching. Urea products are typically surface applied without inhibitors increasing losses. Soil quality may also be degraded by excess or inadequate nutrients.</p>
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After Practice Situation	<p>A nutrient management system that meets the NRCS 590 standard is developed on over 40 acres of cropland or hayland. The development and implementation of a nutrient management plan benefits plant productivity and reduces off-site degradation by maximizing nutrient use efficiency by the crop and minimizing the potential of nutrient losses in leaching and runoff caused by over-application. A nutrient budget is developed for each field based on soil test analysis and land grant university or crop removal rates. Pre-plant soil tests are used to determine the annual nutrient budget and post-harvest soil and/or tissue tests are used to re-evaluate the adequacy of the plant's nutrient recommendations in meeting crop needs while minimizing phosphorus application and residual nitrogen. Post-harvest testing ensures proper utilization of nutrients thus reducing the potential for off-site impacts. Pre side-dress soil nitrogen tests or pre-top dress tissue tests are used prior to the rapid biomass growth of the plant to assist the producer in evaluating the mineralization nitrogen from manures in providing adequate nitrogen to meet the crop requirements. Urease inhibitors are used for surface applications of urea products to reduce losses. The producer maintains records that are provided annually of the current soil tests, analysis, amount of application, and forms and rates of nutrients for each field, including post-harvest analysis. Management results in nutrient applications that minimize nutrient runoff and leaching, and/or the buildup of excess nutrient concentrations.</p>
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Scenario Feature Measure	Per acre of applied management
Scenario Unit	Acre
Scenario Typical Size	40

Cost Summary:		
Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$645.51	\$16.14
Equipment/Installation	\$52.32	\$1.31
Labor	\$421.92	\$10.55
Mobilization	\$0.00	\$0.00
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$1,119.75	\$27.99

Scenario Worksheet

Practice and Scenario Description:	
Information Type	Data
Region	Mid Atlantic
State	New Jersey
Discipline Group	Agronomy
Practice Code/Name	590 - Nutrient Management
Scenario ID	5
Scenario Name	Enhanced Nutrient Mgt

Scenario Description	<p>An enhanced nutrient management system is implemented on over 40 acres of a conventional cropping system where either no nutrient management or only a basic nutrient management plan is being practiced. An enhanced nutrient management system includes split applications and multiple nutrient concentration tests. Methods that more concisely enable scheduling of appropriate fertilizer applications are used. Typical installation involves soil testing, nutrient concentration tests, analysis, consultant services that provide nutrient recommendations and an associated nutrient budget, and record keeping. The technical recommendations are based on land grant university recommendations or crop removal rates. Producer records demonstrating implementation of the 4 R's of the nutrient management criteria are required.</p> <p>Associated practices: Conservation Crop Rotation (328), Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed (329), Cover Crop (340), Filter Strip (393), Irrigation Water Management (449), Drainage Water Management (554), and Pest Management (595).</p>
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associated practices not needed

Before Practice Situation	<p>A conventional operation either is not practicing nutrient management or only a basic nutrient management plan is being practiced. Soil and manure tests are not completed on a regular basis and fertilizer applications are not based on nutrient recommendations. Nutrient applications, including manure and amendments, are completed annually based on traditional methods and not based on the proper rates or timing to have the most beneficial effect. Improper management has caused water quality degradation through excess nutrients transported through runoff and soil erosion to surface waters and/or to groundwater through leaching. Soil quality may also be degraded by excess or inadequate nutrients. Traditional methods, forms, and amounts of nutrient applications often result in inefficient energy use.</p>
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After Practice Situation	<p>The development and implementation of a Nutrient Management Plan (NMP) will benefit plant productivity and reduce off-site movement of nutrients. The use of pre-plant soil tests will assist with the development of the annual nutrient budget in accordance with Land Grant University fertilizer guides. The NMP will stress the use of the four R's (Right Source of Nutrients, Right Time of Application, Right Rate, and Right Method of Application). These include practices such as use of split applications, slow release nutrients, nitrogen inhibitors, proper timing of application, more appropriate formulations, banding, etc. Additional nutrient tests including PSNT (pre-sidedress nitrogen test), CSNT (corn stalk nitrate test), and PPSN (pre-plant soil nitrate test), chlorophyll meters, spectral analysis, etc., may be used to further refine nutrient applications. Record keeping will document application of nutrients based on the 4 R's. Use of a post-harvest soil test or tissue tests (interpreted by a crop consultant) will help establish the adequacy of the plan in meeting crop needs while minimizing P application rate and residual N, thus reducing the potential for off-site impacts. Further minimization of risk is accomplished by identifying the variability across the field(s) by using soil survey maps or other simple techniques to establish zones, along with zonal soil testing. Nutrients are applied at rates based on soil test zone analyses. The producer will attend training of "crop school or nutrient management workshop" or similar activity annually to stay current on crop-specific nutrient management. Typical treatment area is 40 acres. Soil testing is completed according to LGU recommendations. Analysis are completed at least once every three years for N-P-K, and for N annually. A nutrient budget is developed for each field or section of field annually. Application of nutrients via fertilizers, and/or manures applied in a manner that minimizes nutrient runoff and leaching. Application rates of all sources of nutrients are based upon soil tests and either LGU recommendations, crop removal rates, or industry standard.</p>
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Scenario Feature Measure	Per acre of applied management
Scenario Unit	Acre
Scenario Typical Size	40

Cost Summary:		
Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$559.39	\$13.98
Equipment/Installation	\$553.92	\$13.85
Labor	\$504.61	\$12.62
Mobilization	\$0.00	\$0.00
Acquisition of Technical Knowledge	\$326.52	\$8.16
Foregone Income	\$0.00	\$0.00
Total	\$1,944.44	\$48.61

Scenario Worksheet

Practice and Scenario Description:	
Information Type	Data
Region	Mid Atlantic
State	New Jersey
Discipline Group	Agronomy
Practice Code/Name	590 - Nutrient Management
Scenario ID	6
Scenario Name	Precision NM System

Scenario Description	<p>This scenario describes the implementation of a basic precision nutrient management system on cropland. The planned NM system will meet the current 590 standard. Payment for implementation is to defray the costs of soil testing, analysis, consultant services that provide nutrient recommendations based on LGU recommendations or crop removal rates and an associated nutrient budget, recordkeeping, and monitoring on a precision level. Records demonstrating implementation of the 4 R's of the NM plan will be required. This scenario goes beyond the basic NM system by using technologies that improve efficiency and effectiveness of nutrient management by utilizing precision techniques and tools. Precision nutrient mgmt techniques ensure that the right rate, proper timing, and proper placement of nutrients minimize non-point source pollution and provide proper amounts of nutrients to the crop where it is needed and not applying where it is not needed.</p> <p>Associated practices: Conservation Crop Rotation (328), Residue and Tillage Management - No-Till/ Strip Till/ Direct Seed (329), Cover Crop (340), Filter Strip (393), Irrigation Water Management (449), Drainage Water Management (554), and Pest Management (595).</p>
Before Practice Situation	<p>In this geographic area, a fertility program is already in place, however, applied nutrients are applied across large acreages based on a lack of representative soil samples or analyses. The current NM system may or may not meet 590 standards, however, could be improved by reducing energy inputs. Because whole fields are fertilized with the same rate, excess nutrients may be applied in some areas while inadequate amounts of nutrients are applied in other areas. Due to the mono-application rate, excess nutrients are transported to surface waters through runoff or erosion or to ground water from leaching in quantities that degrade water quality and limit use of intended purposes. Soil quality may be degraded by excess or inadequate nutrients. Fertilizer applications are made in their entirety more than 30 days prior to planting. Applications do not consider the detrimental affects of improper timing or improper rates. Whole fields with like crops and rotation are fertilized the same.</p>
After Practice Situation	<p>Soil testing is completed in a fashion that provides a representative assessment of nutrient concentrations in each field or management zone. Soil sampling consists of methods that allow for various zones to be established. Zone maps are created and a nutrient budget developed for each zone. An application rate (prescription) is developed for each zone based on representative soil analysis and zone nutrient budget. Nutrient applications are based on LGU recommendations. Soil testing is completed annually for N and at least once every three years for P-K. A nutrient budget is developed for each field annually. Application of nutrients is completed so that non-point source pollution is minimized. Nutrients are applied based on realistic yield expectations. Records are maintained for all nutrient applications and soil testing. Record keeping will include all soil tests, analysis, zone maps, nutrient prescriptions and budgets, and as-applied applications.</p>
Scenario Feature Measure	Per acre of applied management
Scenario Unit	Acre
Scenario Typical Size	40

associated practices not needed

Cost Summary:		
Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$230.52	\$5.76
Equipment/Installation	\$458.16	\$11.45
Labor	\$459.03	\$11.48
Mobilization	\$0.00	\$0.00
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$1,147.71	\$28.69

