Summary and Conclusions

Conducting case studies should not require significant efforts beyond normal conservation planning activities. Properly structured, they will provide more insights on actual results from conservation treatments experienced by producers in your area.

These insights will improve your knowledge of the outcomes experienced by farmers. Therefore, you will be able to express your recommendations for treatment in a more credible manner because of greater "product" knowledge and understanding. Farmers will recognize this expertise and your effectiveness will increase accordingly.

You will also be better able to apply "Professional Selling Skills" and other conservation marketing concepts to identify and target priority resource problems and potential cooperators.

Case studies will also help build a permanent record of treatment results that are very useful for selling conservation and that won't disappear as employee retirements and transfers occur. They should also serve technology transfer purposes when shared between field offices and with other interested parties. The information contained in a case study enables planners with various levels of experience to have access to the knowledge of the best.

Finally, going through the process of developing and evaluating a case study could be an excellent training exercise for new employees to refine their knowledge of planning and to enhance measurement skills and use of the predictive models.

U.S. Department of Agriculture
Soil Conservation Service

Exhibit 1
Conservation Effects Worksheet

Name: Joe Decisionmaker	Address: Lima, Ohio	OPID No. JD123456	Field or Tract No. 1234

Resource Setting:
Blount-Morley soils, moderately sloping

Resource Problems Before Treatment:
Excess sheet, rill, and gully erosion, N & P_2O_5 in runoff, pesticides in runoff

Description of Treatment Option:
Grassed waterway
Conservation Cropping Sequence (C-Sb-W)
Conservation Tillage: (No-till Corn and Soybeans) (Mulch-till Wheat)
Nutrient Management, Pest Management

Meets Resource Management System Criteria

Benchmark (Present management system):
Conventional tillage for corn and beans, wheat drilled in lightly disked bean residue. No waterways

Actions (Kinds, Amounts, Timing)	Effects (Effects of continuing the benchmark system)	Comparison of Effects of Benchmark and Treatment Option: Impacts	Decisionmaker Evaluation
Corn: --Apply N, P, and K in the fall --Fall plow wheat stubble --Disk --Apply Lariat (Atrex-Lasso) --Field cultivate to incorporate herbicides --Plant --Rotary hoe --Spray Banvel + 2,4-D amine as needed --Row cultivate once **Beans:** --Plow in the fall --Disk twice --Plant and spray Turbo --Double back for 15" rows --Rotary hoe **Wheat in Bean Stubble:** --Disk once --Drill wheat	--P_2O_5 in runoff causing algae bloom in farm pond and contributes to pollution of Lake Erie --Traces of pesticides in surface water -- Nitrates in tile flows in the spring --Soil loss 12 tons/acre --Three small gullies will enlarge --Soil tilth will decline --Machinery: 125 hp tractor moldboard plow disk field cultivator planter rotary hoe rowcrop cultivator --Chemicals: Corn: Lariat .88 gal/ac Banvel 1/4 pt/ac Beans: Turbo 1 qt/ac Wheat: None --Fertilizer: Corn: N 140 lb/ac P_2O_5 60 lb/ac K_2O 90 lb/ac Beans: P_2O_5 40 lb/ac K_2O 120 lb/ac Wheat: N 75 lb/ac P_2O_5 45 lb/ac K_2O 80 lb/ac --Fuel: Corn 8.3 gal/ac Beans 7.0 gal/ac Wheat 5.5 gal/ac --Labor: Corn 9.8 hrs/ac Beans 8.8 hrs/ac Wheat 5.0 hrs/ac --Yields: (expect to decline over time) Corn 143 bu/ac Beans 42 bu/ac Wheat 60 bu/ac	--Phosphorus runoff reduced --Less mobile herbicides used --Less leaching of nitrates --Soil loss reduced 9 tons/ac --Gully erosion eliminated --Infiltration increased --Power needs reduced 50 hp --Eliminate: Moldboard plow Field cultivator Rotary hoe Row cultivator --Less soil compaction --Slower planting --Need more time for scouting --Chemical use increased --Fertilizer requirements unchanged but timing of application is closer to when crop needs nutrients --Fuel reduced: Corn 1.8 gal/ac Beans 2.2 gal/ac Wheat 0.8 gal/ac --Labor reduced: Corn 2.4 hrs/ac Beans 3.3 hrs/ac Wheat 0.8 hrs/ac --Yields will be maintained --1/2 acre less cropland --1/2 acre more wildlife nesting habitat	(+) Pond will clear up (-) Poorer weed control (+) Better quality of water (+) Conserves moisture (+) Less equipment damage (+) Less ponding (+) Can sell big tractor (+) Less machinery to maintain and fewer trips (+) (+) (+) (+) Better root development (-) (-) (-) Burn-down herbicide needed (+) Better utilization of nutrients (+) Lower input costs (+) (+) (+) Can use this time for scouting and more time for livestock (+) (+) (+) (-) (+)

Comments:

Note: This sheet is to be completed with the decisionmaker during the planning visit with the decisionmaker's evaluation recorded in the right-hand column.

The use of brand names does not constitute an endorsement by the Soil Conservation Service

Exhibit 2
Conservation Treatment Information

Field Office: Lima Field Office

Resource Setting: Blount-Morley soils, moderately sloping;

Conservation Treatment: Grassed waterway, conservation cropping sequence (C-Sb-W), Conservation Tillage (NT corn & beans, MT wheat) Pest Management, Nutrient Management (meets RMS criteria);

Resource Problems Before Treatment:
Excessive sheet and rill erosion, gullies, nutrients and pesticide in runoff;

Actions (Kinds, Amounts, and Timing)	**Effects** (Effects of Conservation Treatment)
Nutrient Management --See actions by crop below **Pest Management** --Scout for economic pest levels --Select alternate control measures --Use less mobile chemicals **Grassed Waterway** --Construct and seed to smooth bromegrass **No-Till Corn in Wheat Residue** --Chop stubble (August) --Soil Test in March or April) --Apply P&K 1 week prior to planting --Plant and spray Bladex Gramoxone Isotox seed treater --Knife in anhydrous ammonia --Spray broadleaf weeds Banvel 2,4-D **No-Till Beans in Corn Stalks** --Spray preplant herbicides --Spot spray for thistle with Roundup --Plant & Spray Turbo & Gramoxone double back for 15" rows --Spot spray quackgrass with Fusilade & thistles with Basagran as needed **Mulch-Till Wheat in Bean Stubble** --Disk bean stubble --Drill wheat --Apply nitrogen in late February	**RMS** Installed --Soil Loss 3 tons/acre --Nutrients better utilized --Nutrient pollution reduced --Less mobile herbicides used --Scouting for pests conducted --Waterway eliminated gully --Waterway removes 1/2 acre of cropland --Waterway provides 1/2 acre of wildlife habitat --Residue improves tilth, decreases runoff --Sedimentation potential reduced --Machinery: 75 Hp tractor No-till planter Chopper --Chemicals: Corn: Gramoxone 2 pts/ac Bladex 3 qt/ac Banvel 1/4 pt/ac 2,4-D 1/4 pt/ac Beans: Gramoxone 1 pt/ac Turbo 1qt/ac Wheat: None --Fertilizer Corn: N 40 lb. starter, 80-100 lb. NH_4 P_2O_5 60 lb/ac K_2O 90 lb/ac Beans: P_2O_5 40 lb/ac K_2O 120 lb/ac Wheat: N 75 lb/ac P_2O_5 45 lb/ac K_2O 80 lb/ac --Fuel Corn 6.5 gal/ac Beans 4.8 gal/ac Wheat 4.7 gal/ac --Labor Corn 7.4 hrs/ac Beans 5.5 hrs/ac Wheat 4.2 hrs/ac --Yields Corn 143 bu/ac Beans 42 bu/ac Wheat 60 bu/ac

Comments:

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Exhibit 3

A composite picture of adopter categories

Adopter category	Salient values	Personal characteristics	Communication behavior	Social relationship	% of Population
Innovators	"Venturesome", willing to accept risks	Youngest age; highest social status; largest and most specialized operations; wealthy	Closest contact with scientific information sources; interaction with other innovators; relatively greatest user of impersonal sources	Some opinion leadership; cosmopolite	2.5
Early Adopters	"Respect"; regarded by many others in the social system as a role model	High social status; large and specialized operations	Greatest contact with local change agents	Greatest opinion leadership of any category in most social systems; localite	13.5
Early Majority	"Deliberate"; willing to consider innovations only after peers have adopted	Above average social status; average-sized operations	Considerable contact with change agents and early adopters	Some opinion leadership	34.0
Late Majority	"Skeptical"; overwhelming pressure from peers needed before adoption occurs	Below average social status; small operations; little specialization; small income	Secures ideas from peers who are mainly late majority or early majority; less use of mass media	Little opinion leadership	34.0
Laggards	"Traditional"; oriented to the past	Little specialization; lowest social status; smallest operations; lowest income; oldest age	Neighbors, friends, and relatives who have similar values are their main information sources	Very little opinion leadership; semi-isolates	16.0

Source: Rogers and Shoemaker, 1971.

Exhibit 4

Case Study Guidance Summary

1) **Select priority resource problem**

--e.g., soil productivity loss, water quality degradation, etc.

2) **Select typical resource use system**

--Crop rotation and/or livestock enterprise

3) **Select cooperative landuser**

4) **Record conservation effects worksheet data for benchmark situation**

--Actions (before or without treatment system inputs)
--Effects (before or without treatment system outputs)
(also note landowner objectives)

5) **Record conservation treatment information worksheet data from option situation**

--Actions (after or with treatment system inputs)
--Effects (after or with treatment system outputs)

6) **Record conservation effects worksheet data on the impacts of treatment**

--Changes that occur as a result of treatment, i.e., "after treatment minus before treatment" effects or "with minus without treatment" effects

7) **Record conservation effects worksheet information on the decisionmaker's evaluation of the impacts**

--Cooperator's value judgement on the merits of experienced changes due to treatment

8) **Update Case Study with additional years' data as needed**

9) **File final Case Study(ies) in Section V-B of the FOTG / Use them for planning, training, share with other field offices, etc.**