Agricultural NPS Measures

Kevin Wagner
Aaron Wendt
How are Ag BMPs Implemented?

Texas Conservation Partnership

- Providing Conservation Assistance to Private Landowners for 70 Years
- LOCAL - 217 Soil and Water Conservation Districts (SWCDs)
- STATE - Texas State Soil and Water Conservation Board (TSSWCB)
- FEDERAL - U.S. Department of Agriculture – Natural Resources Conservation Service (NRCS)
Critical Partners

• Texas AgriLife Extension Service
  – Education and demonstration of BMPs
  – Soil testing campaigns
• Texas Forest Service
  – Silvicultural NPS mgmt
• Texas Department of Agriculture
  – lead state agency for the regulation of pesticide use and application
• Texas AgriLife Research
  – Research and demonstration of BMP effectiveness
• USDA Agricultural Research Service
  – Research and demonstration of BMP effectiveness
Implementation Strategy

Proactively address agricultural and silvicultural nonpoint sources of pollutants through voluntary implementation of BMPs by landowners to bring impaired waterbodies back into compliance with water quality standards or prevent waterbodies from becoming impaired
Implementation Strategy

• Technical assistance for landowners to develop WQMPs or RMS
• Financial assistance for landowners to implement BMPs
• Research on effectiveness of BMPs
• Education on and Demonstration of BMPs
WQMPs & RMS

• Site specific plans with a combination of BMPs for the treatment of identified resource concerns

• Based on:
  – Soil types
  – Planned land use/production goals
  – Known/potential water quality/natural resource problems (SWAPA)
  – Other site specific factors (topo, etc.)
ONLY WQMPs

• Cover the entire farm or ranch

• Specifically designed to achieve pollution prevention/abatement
  – Consistent with Texas water quality goals

• Texas Water Code §26.121 essentially grants TSSWCB-certified WQMPs the same legal status as TCEQ point source permits
Technical Criteria for WQMPs & RMS

NRCS Field Office Technical Guide (FOTG)

To view all approved practices for selected county:
- Select region
- Select county
- Select Section IV
- Select A. Conservation Practices
BOTH include FOTG “essential practices” for each land use:

- **Cropland**
  - Conservation crop rotation
  - Residue mgmt.

- **Pastureland**
  - Prescribed grazing
  - Livestock water

- **Rangeland**
  - Prescribed grazing
  - Livestock water

- **Wildlife**
  - Wildlife mgmt.

- **Forestland**
  - Forest mgmt.
WQMPs & RMS also include:

- Nutrient management
- Pest management
- Animal waste management system
- Waste utilization
- Irrigation water management
WQMPs & RMS also include:

- Erosion control measures to bring soil loss to acceptable levels (T)
- Erosion control to treat other forms of erosion (i.e. gullies) according to FOTG quality criteria
- Other practices to meet site specific concerns
Obtaining a RMS or WQMP

• Producer requests planning assistance thru SWCD
• Plan developed with assistance from NRCS, SWCD, &/or TSSWCB
• Plan approved by producer & SWCD and NRCS verifies FOTG consistency
## Obtaining a RMS or WQMP

- TSSWCB reviews WQMP for consistency with Texas water quality goals
- WQMP certified by TSSWCB
- Individual plan implementation
- Annual status review
WQMP Content

WATER QUALITY MANAGEMENT PLAN

In Cooperation With

Soil & Water Conservation District

TSSWCB
Texas State Soil & Water Conservation Board

USDA NRCS
Natural Resources Conservation Service
District Cooperative Agreement

Matagorda County Soil and Water Conservation District #316
2200 Avenue A - Bay City, Texas 77414

District

Cooperative Agreement

DISTRICT – COOPERATOR AGREEMENT

1. The undersigned cooperator, understand the purpose of the Matagorda County Soil and Water Conservation District, its objectives and program. I desire to use my land within its capabilities and to treat it according to its needs. To this end, therefore, I enter into the following agreement with the Matagorda County Soil and Water Conservation District.

I AGREE:

1. To develop as rapidly as feasible, with the assistance of the district a conservation plan for my operating unit that will be mutually acceptable to me and the district.

2. To carry out this plan as rapidly as my resources and help available to me from the district, will permit.

3. To comply, in carrying out this plan, with any applicable State laws governing the beneficial use of water.

4. To maintain all structures and other conservation measures which the district has helped me put into effect on my unit.

5. That members of the district governing body or their representatives will have the right of ingress and egress to my operating unit during the period of this agreement for the purpose of conducting surveys, planning, and installing or inspecting conservation measures or structures.

THE DISTRICT AGREES TO:

1. To supply soil survey information for the operating unit.

2. To provide technical assistance to help in the development or revision and application of the conservation plan.

IT IS MUTUALLY AGREED:

1. That neither the district nor the cooperator will be liable for damages to the other in connection with the installation of structures or other conservation measures unless damages are caused by negligence or misconduct.

2. This agreement will become effective on the date of the last signature and may be terminated by mutual agreement of the parties hereto.

______________________________  ______________________________
COOPERATOR                        DATE

______________________________  ______________________________
BY:                               DIRECTOR

______________________________  ______________________________
DATE                               DATE

MATAGORDA COUNTY SOIL AND WATER CONSERVATION DISTRICT

We are happy to have you as a cooperator. Feel free to call us anytime we can be of assistance.
Request For Planning Assistance

REQUEST FOR WATER QUALITY MANAGEMENT PLANNING ASSISTANCE
SOIL AND WATER CONSERVATION DISTRICT #

County ___________________________, Texas HUA No. ____________________________

Name: ________________________________________________________________

Address: __________________________________________________________________

City/State: ___________________________ Zip Code: __________ Phone #: __________

I hereby apply for assistance in developing a Water Quality Management Plan, as provided by Section 201.026 (c) of the Agricultural Code. It is my intention to implement and maintain this plan in order to meet the State’s requirements for water quality as expressed in Section 26.121(a)(2)*, Texas Water Code.

(1) General description and location of all property within this operating unit.

Total Acres:

(2) The land is controlled and operated by the applicant(s). ( ) Yes ( ) No If no, explain.

(3) An Animal Feeding Operation is involved ( ) Yes ( ) No If yes, is a permit required ( ) Yes ( ) No

(4) I understand that my plan could be randomly selected for an annual status review by personnel of the State Soil and Water Conservation Board.

Applicant’s Signature ___________________________ Date __________

District Director ___________________________ Date __________

NOTE: If you are not a cooperator with the Soil and Water Conservation District, a District Cooperative Agreement must be completed and attached to this application.

*See back of this sheet for full text of quoted Sections.
Soils Map
Non-Technical Descriptions

Any County, Texas

Only those map units that have entries for the selected non-technical description categories are included in this report.

**Map Unit: CaC - Carlsbad loam, 3 to 5 percent slopes**

**Map Unit Category: AGR**

Map Unit CaC, Component CARLENGLIE is 20 - 40 inches thick. Permeability is MODERATE and available water holding capacity is LOW. A water table when present is >6 feet. The soil has a capability subclass of 3E dryland and NONE irrigated.

**Description Category: PHG**

8C - LOAMY UPLAND - Moderately deep to very deep uplands with loamy surfaces and friable loamy subsoils; slopes 0 to 8 percent; medium natural fertility; medium to high water holding capacity with good plant-soil-moisture relationship; medium to high production potential.

**Description Category: RNG**

CLAY LOAM SITE - Deep, fertile, loamy soils. Climax vegetation includes Big and little bluestems, indiangrass, switchgrass, wildrye, and side oats grama; with maximilian sunflower, engelmann daisy, penstemon, gayfeather, sundrops, and other forbs. Pecan, hackberry, elm, oaks, bumelia, and sumac are sparse inhabitants.

**Description Category: SOI**

THE CARLENGLIE SERIES CONSIST OF MODERATELY DEEP, WELL DRAINED, MODERATELY PERMEABLE, VERY GENTLY TO STRONGLY SLOPING SOILS ON UPLANDS. THE SOIL FORMED FROM WEAKLY CEMENTED CALCAREOUS SANDSTONE. IN A REPRESENTATIVE PROFILE, THE SURFACE LAYER IS VERY DARK GRAY CLAY LOAM, 12 INCHES THICK. THE NEXT LAYER IS LOAM, ABOUT 22 INCHES THICK. IT IS LIGHT GRAY IN THE UPPER PART AND WHITE IN THE LOWER PART. BELOW THIS IS WEAKLY CEMENTED SANDSTONE INTERBEDDED WITH LOAMY MATERIALS.

**Map Unit: FsB - Freelsburg clay, 1 to 3 percent slopes**

**Map Unit Category: AGR**

Map Unit FsB, Component FRELSBURG is >90 - inches thick. Permeability is VERY SLOW and available water holding capacity is HIGH. A water table when present is >6 feet. The soil has a capability subclass of 2E dryland and NONE irrigated.

**Description Category: PHG**

7A2 - HEAVY CLAYEY UPLAND (CALCAREOUS) - Deep and very deep heavy clayey uplands with slopes of 0 to 5 percent; dense clayey subsoils; reaction is moderately alkaline throughout; high natural fertility; seasonal wet or droughty; KVery high to high water holding capacity but fair plant-soil-moisture relationship; medium to high production potential.

**Description Category: RNG**

BLACKLAND SITE - Deep, fertile, clay soils. Climax vegetation is eastern gamagrass, big bluestem, indiangrass, switchgrass, and little bluestem; with maximilian sunflower, engelmann daisy, button snakeroot, coreflower, gayfeather, indanplantain, hairy sunflower, bundleflowers, and panic clover. Osage orange and honey locust may dot the site.
Conservation Plan Map
Practices Needed & Schedule (CPO)

Water Quality Management Plan

George W. Rancher
784 CR 251
Any Town, Texas 77777

Texas State Soil and Water Conservation Board
Wharton Regional Office
1120 Hodges Lane
Wharton, TX 77488
(979) 532-9496

Pasture/Hayland

Tract: 2344

BRUSH MANAGEMENT (314)

Brush management will be carried out as a maintenance practice. Treat undesirable woody species before they begin to compete with desired plants for space, moisture and sunlight and to maintain forage accessibility, quality and quantity for livestock. This will be accomplished by Individual Plant Treatment (IPT) using chemical or mechanical methods. When chemicals are used refer to the Pest Management narrative in this plan. Contact your local NRCS office for additional information.

<table>
<thead>
<tr>
<th>Field</th>
<th>Planned Amount</th>
<th>Month</th>
<th>Year</th>
<th>Applied Amount</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>26.0 ac.</td>
<td>10</td>
<td>2005</td>
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<td></td>
</tr>
<tr>
<td>3</td>
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<td>10</td>
<td>2005</td>
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</tr>
<tr>
<td>Total</td>
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<td></td>
<td></td>
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</table>

FORAGE HARVEST MANAGEMENT (511)

Pastures will mainly be grazed, however they will be cut for hay as needed. Cutting and removal of forages from the field will be managed to produce the desired quality and quantity, to promote vigorous regrowth, and to maintain stand life. When cutting hybrid Bermudagrass (Coastal, Jiggs, Tifton 85, etc.), cut when the plant is 15 to 18 inches in height for the first cutting, thereafter every 4 to 5 weeks or when 12 to 15 inches tall. Leave a stubble height of at least 3 inches for hybrid bermudagrass.

<table>
<thead>
<tr>
<th>Field</th>
<th>Planned Amount</th>
<th>Month</th>
<th>Year</th>
<th>Applied Amount</th>
<th>Date</th>
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</thead>
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<td></td>
</tr>
<tr>
<td>3</td>
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<td>9</td>
<td>2005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>56.0 ac.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

PASTURE AND HAY PLANTING (512)

Convert cropland to hayland/pastureland to increase forage production and improve water quality. Prepare a smooth, firm, weed-free seedbed. Plant to hybrid bermudagrass by sprigging or by broadcasting at the rates recommended and within the dates recommended in the attached Pasture Planting Jobsheets. For additional specifications refer to the attached NRCS Conservation Practice Standard for Pasture and Hay Planting, (512). Fertilize according to the Nutrient Management narrative and/or narratives and manage pests according to the Pest Management narrative.

<table>
<thead>
<tr>
<th>Field</th>
<th>Planned Amount</th>
<th>Month</th>
<th>Year</th>
<th>Applied Amount</th>
<th>Date</th>
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</thead>
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<td>5</td>
<td>2005</td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td>13.0 ac.</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Nutrient Management

Definition

Managing the amount, form, placement, and timing of application of plant nutrients.

Purposes

This practice is to be applied in part of a conservation management system to support one or more of the following:

- To supply plant nutrients for the optimum storage and crop yields.
- To provide nutrients to quickly dying and established vegetation, e.g., for conservation cover, riparian zones, gully prevention, or wildlife habitat.
- To minimize loss of nutrients to surface and ground water.
- To control or improve chemical and biological conditions of the soil.

Conditions Where Practice Applies

On land where plant nutrients are applied.

General Criteria Applicable to All Purposes

A nutrient management plan will be developed to provide specific information concerning nutrients and application methods. The plan will: 1) specify the time, location, and method of application; 2) specify the nutrient content of the fertilizer; and 3) include a system for monitoring the nutrient application and removal. The nutrient application plan will take into account the soil type, soil nutrient levels, and the crop type. The application plan will be reviewed and updated periodically to ensure continued effectiveness and efficiency.

NRCS Practice Standards (FOTG)
Low Head Drop Inlet Design

U.S. Department of Agriculture
Natural Resources Conservation Service

Low Head Drop Inlet Design

SWCD Wharton County
Cooperator

Field Office Wharton County

Location Magnet, TX

Wharton County County, Texas

Field No.

Structure No. 1 Replace

Designed By M.J. Northcut Date 28 Feb. 2002

Approved By M.J. Northcut Date 4 March 2002

EJAA Class IV

Spillway bottom width Overland ft.

Spillway flow depth 0.8 ft. (2 yr. Freq.)

Emergency spillway elev. 96.0

Designed depth of flow over lip 10.0 ft.

Elev. Top of Riser 85.0

End of stub

Elev. Bottom of Riser 71.0

Footings:

Final Check

Elev. Bottom barrel at outlet

Elev. Top riser at inlet

Material and component parts meet the plan and design.

Signature

Title

Date

NOTES

1 Drainage Diaphragm (See Sheet 6).

1 Wooden Pipe Support (See Sheet 7).

N/A Cathodic Protection (See Sheet ).

Design drop inlet capacity 189.4 cfs.

Design spillway capacity Overland cfs.

Barrel - Diameter 48 in. Gage 12

Total Length 204 Ft.

Riser - Diameter 66 in. Gage 12

Total Length 15 Ft.

Engineering Designs
CERTIFICATION

1 (We) concur in the conservation practices and implementation schedules indicated in this Water Quality Management Plan. I (We) understand that when these planned Conservation Practices are applied and maintained, the Resource Management Plan will meet the State's requirements for water quality. Failure to comply with this plan and implementation schedule will result in the loss of certification. I (We) agree to notify the local Soil and Water Conservation District in the event of deviation from the implementation schedule. Any substitution or changes to the above practices or implementation schedule must be in accordance with the Field Office Technical Guide and approved by the Soil and Water Conservation District.

Applicant (Producer)  

Date

The above Water Quality Management Plan meets the requirements of the Field Office Technical Guide and the resource quality criteria for water quality.

Certified By: NRCS Representative  

Date

The Water Quality Management Plan includes the conservation management unit and meets the Soil and Water Conservation District's program, plan and its priorities.

Approved by: Soil & Water Conservation District  

Date

The Water Quality Management Plan satisfies the State Board's criteria; complies with Section 26.121 (a) (2) of the Water Code which prohibits the discharge of other waste (agriculture nonpoint source pollution) unless the discharge complies with the person's Certified Water Quality Management Plan approved by the State Soil and Water Conservation Board as provided by Section 291.026 of the Agriculture Code.

Certified by: Texas State Soil & Water Conservation Board  

Date
TSSWCB Cost-Share Funded w/ State Appropriations (503)

• FY2008 funding level = $2.063 M
  – Statewide Program = $0.117 M
    • Animal Feeding Operations
    • Water Quality Complaints
  – TSSWCB Priority Areas = $1.946 M
    • Allocated to 75 SWCDs
    • Based, in part, on 305(b) inventory
TSSWCB Regional Offices & Cost Share Areas

Regional Offices and SB 503 Cost-share Areas

- Regional Offices
- SB503 cost-share areas
  - Dublin
  - Hale Center
  - Harlingen
  - Mount Pleasant
  - Wharton
# TSSWCB Cost Share Program - Practice Eligibility

<table>
<thead>
<tr>
<th>Code</th>
<th>Practice Name and Unit</th>
<th>Minimum Life Span (Yrs)</th>
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</thead>
<tbody>
<tr>
<td>313</td>
<td>Waste Storage Facility (no.)</td>
<td>10</td>
</tr>
<tr>
<td>314</td>
<td>Brush Management (acre)</td>
<td>10</td>
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<tr>
<td>316</td>
<td>Animal Mortality Facility (no.)</td>
<td>10</td>
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<tr>
<td>317</td>
<td>Composting Facility (no.)</td>
<td>10</td>
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<tr>
<td>324</td>
<td>Deep Tillage (acre)</td>
<td>5</td>
</tr>
<tr>
<td>332</td>
<td>Contour Buffer Strips (acre)</td>
<td>5</td>
</tr>
<tr>
<td>342</td>
<td>Critical Area Planting (acre)</td>
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<tr>
<td>350</td>
<td>Sediment Basin (no.)</td>
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<tr>
<td>351</td>
<td>Well Decommissioning (no.)</td>
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<tr>
<td>359</td>
<td>Waste Storage Lagoon (no.)</td>
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<tr>
<td>360</td>
<td>Closure of Waste Impoundments (no.)</td>
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<tr>
<td>362</td>
<td>Diversion (ft.)</td>
<td>10</td>
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<td>378</td>
<td>Pond (no.)</td>
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<tr>
<td>382</td>
<td>Fence (ft.)</td>
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<tr>
<td>386</td>
<td>Field Border (ft.)</td>
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<td>390</td>
<td>Riparian Herbaceous Cover (acre)</td>
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<td>391</td>
<td>Riparian Forest Buffer (acre)</td>
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<td>393</td>
<td>Filter Strip (acre)</td>
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<td>410</td>
<td>Grade Stabilization Structure (no.)</td>
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<td>412</td>
<td>Grassed Waterway (acre)</td>
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<td>430</td>
<td>Irrigation Water Conveyance, Pipeline (ft.)</td>
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<td>436</td>
<td>Irrigation Storage Reservoir</td>
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<td>441</td>
<td>Microirrigation (all needed components)</td>
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<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td>442</td>
<td>Sprinkler-low pressure-new installations</td>
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<tr>
<td>442</td>
<td>Sprinkler – Conversion to low pressure</td>
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<tr>
<td>442</td>
<td>Sprinkler – Chemigation equipment</td>
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<tr>
<td>443</td>
<td>Surface – Shallow flood, rice (all needed components)</td>
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<tr>
<td>443</td>
<td>Surface – Surge valves</td>
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<tr>
<td>447</td>
<td>Irrigation System, Tailwater Recovery (no.)</td>
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<td>462</td>
<td>Precision Land Forming (acre)</td>
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<td>464</td>
<td>Irrigation Land Leveling (acre)</td>
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<td>512</td>
<td>Pasture and Hayland Planting (acre)</td>
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<td>516</td>
<td>Pipeline (ft.)</td>
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<td>521</td>
<td>Pond Sealing or Lining (no.)</td>
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<td>550</td>
<td>Range Planting (acre)</td>
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<td>552-A</td>
<td>Irrigation Pit (no.)</td>
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<td>552</td>
<td>Irrigation Regulating Reservoir (no.)</td>
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<td>558</td>
<td>Roof Runoff Structure (no.)</td>
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<tr>
<td>560</td>
<td>Access Roads (hard surface lanes) (ft.)</td>
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<tr>
<td>600</td>
<td>Terrace (ft.)</td>
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<td>606</td>
<td>Subsurface Drain (ft.)</td>
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<td>612</td>
<td>Tree/Shrub Establishment (acre)</td>
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<td>614</td>
<td>Watering Facility (no.)</td>
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<td>634</td>
<td>Manure Transfer (no.)</td>
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<td>638</td>
<td>Water and Sediment Control Basin (no.)</td>
</tr>
<tr>
<td>642</td>
<td>Water Well (no.)</td>
</tr>
</tbody>
</table>
| 642  | Well Head Protection (no.)                          |**

*Minimum Life Span (Yrs)并不代表图中实际内容。*
NRCS Environmental Quality Incentives Program (EQIP)

- **Voluntary** conservation program
- Supports production agriculture & environmental quality as compatible goals
- Provides farmers & ranchers with financial assistance for BMP implementation
- Designed to address both locally identified resource concerns and state priorities
  - State Technical Advisory Committee recommends State Resource Concerns
  - County work groups (SWCDs + ) set local priorities
- FY2007 Texas allocation = $89M
NRCS EQIP Program
State Resource Concerns

• **Water Quantity - Brush Mgmt.**
  - North Concho
  - Pedernales
  - Spring/Dove Creek, Twin Buttes
  - Edwards Aquifer Range
  - North & South Llano

• **Water Quantity - Irrigation**
  - Edwards Aquifer
  - Far West - Rio Grande
  - Lower Rio Grande Valley
  - Texas Coastal Area
  - West Texas
NRCS EQIP Program
State Resource Concerns

• **AFO-CAFO**
  - Beef - Water/Air Quality
  - Dairy - Water/Air Quality
  - Poultry - Water/Air Quality
  - Swine - Water Quality

• **Invasive Species**
  - Chinese Tallow
  - Saltcedar

• **Water Quality**
  - South Central Texas (four TMDL watersheds)

• **Wildlife**
NRCS EQIP Program
County Concerns

• Base Allocation = $144,000/county
• To view County Concerns/Practices:
  - Select a Zone on the map
  - Select a County
  - View
    • State Resource Concerns in County
    • County EQIP Resource Concerns
    • Eligible Practices
    • Application Screening Criteria
Other USDA Programs

- **USDA – Farm Services Agency**
  - Conservation Reserve Program (CRP)
  - Conservation Reserve Enhancement Program (CREP)
  - Source Water Protection Program

- **USDA – NRCS**
  - Conservation Security Program (CSP)
  - Grassland Reserve Program (GRP)
  - Wetlands Reserve Program (WRP)
  - Wildlife Habitat Incentives Program (WHIP)
Getting Started - First Step

• Contact TSSWCB (HQ, Regional Office, & Field Representative)

• Meet with all local SWCDs & NRCS District Conservationists (DCs)
  - [http://www.tsswcb.state.tx.us/swcds/locatormap](http://www.tsswcb.state.tx.us/swcds/locatormap)

• Meet with all Extension Agents
  - [http://county-tx.tamu.edu/](http://county-tx.tamu.edu/)

Assess formation of Ag Work Group
Inventory Existing Efforts

- NRCS EQIP, etc.
- TSSWCB WQMPs
- Extension Education Efforts

How can you capture & build upon these efforts in your WPP?
Develop “preliminary” BMP list

What’s needed to address the pollution issues of concern?

SOURCES OF INFO

• FOTG Section V

• National Management Measures to Control Nonpoint Source Pollution from Agriculture
  - EPA 841-B-03-004, July 2003
<table>
<thead>
<tr>
<th>RESOURCE CONCERNS</th>
<th>Conservation Practices</th>
<th>Water Quality; Surface Water; Pesticides, Nutrients, Organics, Sediment</th>
<th>Air Quality, Airborne Floculates (dust)</th>
<th>Air Quality; Airborne Chemicals</th>
<th>Air Quality; Odors</th>
<th>Plants, Cropland Productivity</th>
<th>Plants, Pasture and Hayland Productivity and Health</th>
<th>Plants, Forest Productivity &amp; Health</th>
<th>Animal Habitat; Domestic; Food; Water; Cover, Shelter</th>
<th>Animal Habitat; Wildlife; Food; Water; Cover, Shelter</th>
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<tbody>
<tr>
<td>Access Road - 565</td>
<td>SI to Mod Decrease</td>
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<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>SI to Mod Decrease</td>
<td>SI to Mod Decrease</td>
<td>SI to Mod Decrease</td>
<td>SI to Mod Decrease</td>
</tr>
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Considerations for selecting BMPs

• Technical Feasibility
• Efficiency of Pollutant Removal
• Cost / Cost Effectiveness
• Acceptability / Adoption by Producers
• Impact on other resources
Evaluate BMP Efficiency

- Model BMP effects (preferred)
- Use literature values (difficult to find)
- Monitor

Which one you use depends on:
  - Your use of modeling for watershed characterization
  - Your Budget
  - What’s required by stakeholders
Assess Impact on Other Resources

• A practice may *moderately decrease* (+3) an erosion problem & *slightly increase* (-1) a water quality problem.

• To evaluate, refer to FOTG Section V
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<th>Soil Erosion; Sheet &amp; Rill</th>
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<th>Soil Erosion; Concentrated Flow</th>
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<td>Grazed Waterway - 412</td>
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<td>Hedgerow Planting - 422</td>
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</table>
Develop Final BMP List & Rank

- Accomplished by Ag Work Group

- Rank according to:
  - Efficiency
  - Cost / Cost Effectiveness
  - Acceptability
  - Impact on other resources
Estimating Financial Assistance (FA)

• Option 1 – Estimate by # of WQMPs

• How many WQMPs?
  – Estimate total # of farms
    • Divide targeted acreage by average farm size (from federal Census of Agriculture) to estimate total # of farms
    • If targeting land adjacent to waterbody, visit tax assessor’s office (or sometimes NRCS/FSA) to determine # of farms
Estimating Financial Assistance (FA)

• How many WQMPs? (continued)
  – Assume 50% participation - divide total # farms by 2
  – Multiply by $10K per WQMP to estimate FA

• 20-25 plans per technician per year
Estimating Financial Assistance (FA)

• Option 2 - Estimate by practices needed
• For all practices - list # or ac needed
• Multiply # or ac needed by NRCS Practice Costs
• NOTE = no more than 50-66% participation should be expected
Estimating Technical Assistance

• 20-25 WQMPs per year can be developed per technician
  - Divide total WQMPs needed by 20-25 to determine # of technician-yrs needed

• $53K/yr per technician
  - Technician Salary = $33K/yr +2% annual increase
  - Bookkeeper time = 10 hr/mo @ $10/hr
  - 28.6% fringe for Technician and Bookkeeper
  - Travel = 65 miles/wk @ state mileage rate
  - Computer = $2.5K
  - Office supplies = $50/mo
  - SWCD financial audit = $3k
Final Tips on Estimating Costs

• Adjust for inflation (3% annually)

• WQMPs & RMS will likely need to be renewed every 5-10 years (depending on life span of BMPs implemented) → adaptive mgmt
QUESTIONS?