ACKNOWLEDGEMENTS

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Photos courtesy of SAFCA
BENEFITS OF NATIVE GRASSES

• Superior erosion protection
• Improved visibility for inspection
• Easier maintenance
• Improved habitat

USACE O&M Manual – Establish “sod”
FEATURES OF NATIVE GRASSES

- Deep rooted
- Perennial bunchgrass
- Suited to the local climate
- Multiple species fill multiple niches
- Height shades other plants
- Fire adapted
- Replace nonnative invasive weeds
- Provides habitat for native wildlife

Photo: Sonoma State University
NATIVE GRASSES ARE DEEP ROOTED
SUCCESSFUL NATIVE GRASS ESTABLISHMENT

Soil Preparation
Ripping, Discing, Seedbed

Seeding
Hydroseeding, Drill Seeding, Broadcast Seeding

Mulching
Straw, Tackifier

Maintenance
Weed management
SOIL PREPARATION

• Ripping
SOIL PREPARATION

• Ripping
SOIL PREPARATION

- Discing
SOIL PREPARATION

• Discing
SOIL PREPARATION
SOIL PREPARATION SUMMARY

Ripping
Deep rip to 3+ feet
D-8 or equivalent with three shanks

Discing
Break down clods to 2- to 4-inches diameter
D-6 or equivalent with a heavy-duty adjustable angle offset disc with ring-roller

Topsoil
Can have a lot of weed seed
Best not to respreads topsoil
• Timing is important
  – Apply seed in the fall (late Sept. through Nov.)
  – Ideally, seed after the first rain

• Seed Specifications
  – Develop mix based on site conditions and budget
  – Specify Pure Live Seed (PLS) pounds per acre
  – Specify local seed sources and suppliers

• No fertilizer needed

• Three primary seeding methods
  – Hydroseeding
  – Drill seeding
  – Broadcast seeding
SEEDING

- Hydroseeding
  - Applications
    - Steep slopes – anything steeper than 2.5:1
    - Wet slopes
    - Areas inaccessible with equipment
    - Fast production rate
  - Typically most expensive
  - Poor seed-soil contact
  - Uses 50-60 lbs seed per acre
  - Don’t see this method in agriculture
• Drill Seeding
  – Applications
    • Shallow grades – 4:1 or flatter
    • Slow production rate
  – Cost effective
  – Excellent seed-soil contact
  – 15-25 lbs seed per acre
  – Common agricultural practice
  – Specialize equipment - Truax
• Broadcast Seeding
  – *Multiple methods, focus on one we developed during the NLIP*
  – **Applications**
    • Moderate slopes – Shallower than 2.5:1
    • Moderately fast production rate
  – *Good seed-soil contact*
  – *Seed rate 20-25 lbs per acre*
• Ridger-Roller-Seeder (RRS)
SEEDING

- Ridger-Roller-Seeder (RRS)
MULCHING

• Numerous Benefits
  – *Raindrop erosion protection*
  – *Moisture retention*
  – *Protection from birds*
  – *Nutrients*
  – *More natural condition*

• Recommend straw with a tackifier
  – *Certified noxious weed free native grass or rice straw*
  – *Straw at 1,500 lbs/acre*
MAINTENANCE

• Maintenance is the key to success
MAINTENANCE

• Contracting
  – *Build in 3 years of maintenance to seeding specifications*
  – *Separate seeding contract from the levee construction contract*
  – *Performance-based contract*
MAINTENANCE

• Year 1 – Reduce competition
  – Annuals will germinate first and grow faster
  – Mow as early as possible first spring
  – Use broadleaf specific herbicides
  – Be aggressive
• Year 2 – Control competition
  – Be proactive
  – Annuals may still grow faster and larger in the winter
  – Still mow as early as possible in the spring
  – Use broadleaf specific herbicides
  – Be aggressive with weed treatment
• Year 3 – Eliminate competition
  – Natives will be larger and will begin growing earlier in the winter
  – Still mow as early as possible in the spring
  – Address even small patches of weeds
  – Use broadleaf specific herbicides
  – Use pre-emergent herbicide at the end of the third year
  – Introduce grazing
MAINTENANCE

• Long-Term Management
  – *Mowing*
  – *Herbicide Application*
    • Broadleaf specific
    • Pre-emergent
  – *Grazing*
  – *Burning*
  – *Farming (swath and bale for hay)*
MAINTENANCE

- Mowing
  - 2 to 3 times per year
MAINTENANCE

• Herbicide Application
  – Broadleaf specific
    • 1 to 2 times per year, as needed
  – Pre-emergent
    • Every 3 to 5 years, as needed
MAINTENANCE

• Grazing
  – Sheep and goats
  – Mid-spring to early summer
MAINTENANCE

• Prescribed burning
  – Every 3-5 years
  – Not before 3 years of establishment
MAINTENANCE

• Farming
  – Swath and bale annually
  – Mid-spring
QUESTIONS

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