

Marquette Branch Prison Farm  
*Marquette, MI*

Crop Rotation Program  
*Dan Kolpack, Farm Manager*

# Farm Background

- Farm established in 1890-91
- Total Farm Acreage: 1221 acres
  - 430 tillable
  - 568 wooded
  - 29 permanent pasture
  - 8 fallow
  - 186 farmsteads, buildings, ponds
- Cattle: 333 total head
  - 108 milk cows (95 milking) – RHA 21,959 lbs
  - 100 head young stock
  - 125 steers

# Farm Background (cont.)

- All milk processed at MBP and utilized in Michigan prisons only
- All meat is slaughtered at a USDA plant, processed at the MBP butcher shop by prisoners, and utilized only at MBP
- 45-50 prisoners utilized for farm labor

# Crops Grown

- Alfalfa
- Corn silage
- Oats or Barley (primarily for straw bedding)

# Overall Rotation Plan

- Corn silage – 3 years
- Alfalfa – 7 years or more

*(Note: Barley and oats are not included in rotation. They are grown on 12 otherwise idle acres around silos fertilized with steer barn manure only. Average = 800 bales of straw per year)*

# Rotation Details

- CORN – 3 years before alfalfa
  - 96-110 acres (of total 430 tillable)
  - Soil sample and lime last year of hay
  - Moldboard plowed each year, disk and drag
  - Manure (30T/a), potash, nitrogen as needed (N credit taken for remaining alfalfa stand)
  - 120 lbs 20-10-20 fertilizer/a starter
  - 92-94 day leafy silage variety yields 15-16 tons/a silage
  - Last few years, tried RR corn with good results

# Rotation Details

- ALFALFA - Stands typically 7-8 years
  - 40% stand left at tillage
  - Always moldboard plowed in fall before seeding
  - pH 6.5 or better, K level around 140 ppm
  - 20 lb/a alfalfa seed w/disease rating index of 30/30, excellent winter hardiness, fall dormancy, cutting recovery, forage quality w/high yield ratings
  - Direct seed w/3.5 pt/a Eptam

# Alfalfa Details (cont.)

- Topdressing: Annually after 3<sup>rd</sup> cutting
  - High producing fields: 200 lbs/a potash  
22 lbs/a 90% sulfur  
13 lbs/a Bovate 40
  - Low producing fields: 400 lbs/a potash  
22 lbs/a 90% sulfur  
13 lbs/a Bovate 40

# Alfalfa Details (cont.)

- Planted with 12' Brillion seeder
- 3 cuttings per year
- 305.5 acres total alfalfa
  - 250.1 established acres
  - 55.4 acres direct seeding planned for 2009
- Yields of 4 or more tons/a on newer stands
- Average yield of 3.5 tons/a on all fields combined

# Expenses

## ■ SEED

- Alfalfa:  $\$205/\text{bag} = \$4.10/\text{lb} \times 20 = \$82/\text{a}$
- RR Corn:  $\$175/\text{bag} = \$65.62/\text{a}$
- Corn:  $\$127/\text{bag} = \$47.62/\text{a}$

## ■ LIME

- 3.3 tons/a  $= \$1289.24/\text{a}$
- 59.5 acres

# Expenses

## ■ FERTILIZER

- Alfalfa topdress: \$124.65/a delivered & spread  
238 acres average per year  
300 lbs 0-0-60 + sulfur & boron  
Based on \$709/ton 0-0-60
- Straight potash @ 200 lbs/a = \$70.90/a
- Nitrogen: urea @\$460/ton, 100 lbs/acre = \$23/a
- Starter: 20-10-20 @ \$638/ton, 120 lbs/a = \$38.28/a

# Expenses

## ■ CHEMICALS

- Roundup (custom sprayed) \$29.50/a
- Corn ground \$30.75/a
- Eptam \$24.63/a

# Selected Input Costs for Corn

- Seed - \$56.62 (avg) per acre
  - Fertilizer - \$132.18 per acre
  - Chemicals - \$60.25 per acre
- TOTAL \$249.05 per acre

# Selected Input Costs for Alfalfa

## ■ Worse fields

– Seed -	\$82.00 per acre
– Lime (3.3 t/a)	\$128.24 per acre
– Fertilizer (200# @ seeding) -	\$70.90 per acre
– Chemicals -	<u>\$24.63 per acre</u>
TOTAL	\$305.77 per acre

## ■ Better fields

– Seed -	\$82.00 per acre
– Lime (1 t/a)	\$38.00 per acre
– Fertilizer (100# @ seeding) -	\$35.45 per acre
– Chemicals -	<u>\$24.63 per acre</u>
TOTAL	\$180.08 per acre

# Corn/Alfalfa Rotation vs Corn Only

- 50 acre field: 3 years corn, 8 years alfalfa
  - Corn cost: \$37,357.50
  - Alfalfa cost: \$65,148.50 (\$15,288.50 seeding, \$49,860.00 topdress)

**TOTAL: \$102,506.00**

- 50 acre field: continuous corn 11 years

**TOTAL: \$136,977.50**

*Thank You!*