



Multiple Input Production Economics

EXAMPLES

AAE 320

Paul Mitchell

pdmitchell@wisc.edu 608-320-1162



Example 1

Grain (lbs)	Hay (lbs)	MRTS	price ratio
825	1350		<input type="text"/>
900	1130	2.93	
975	935	<input type="text"/>	
1050	770	2.20	
1125	625	1.93	
1200	525	<input type="text"/>	
1275	445	1.07	

The table is ratios of grain and hay that put 300 lbs of gain on 900 lb steers.

- 1) Fill in the missing MRTS
- 2) If grain is \$0.06/lb and hay is \$0.03/lb, what is the economically optimal feed ration?

Example 2

- Corn yield is $Y = 10 + 12N - 0.2N^2 + 15W - 0.3W^2 - 0.1NW$,
- Y = corn yield (bu/ac), N = nitrogen (lbs/ac), W = water (acre inches)
- Corn price = \$3/bu, N price = \$0.5/lb, W price = \$12/acre inch
- What is the profit maximizing amount of nitrogen (N) and water (W) to use per acre to grow corn (Y)?
- Set Up:
- FOCs:
- SOCs:
- Yield at optimal N and W :
- Profit at optimal N and W :

Example 2 Answer

- Set Up: $\pi =$
- FOC_N:
- FOC_W:

Example 2 Answer Continued

- SOCs:
 - $\pi_{NN} =$
 - $\pi_{WW} =$
 - $\pi_{NW} =$
 - Then
- Yield =
-
- Profit =