APPENDIX C

CHANGING REQUIRED APPLICATIONS INTO FERTILIZER RECOMMENDATIONS

Determining the fertilizer recommendations from the required application is a matter of deciding:

(1) what fertilizers are available, and
(2) how many different fertilizers you wish to use on your farm.

The main point to remember is that you must apply the exact amount of required nitrogen. Applied phosphate and potash are not as exact. Extra phosphate and potash remain in the soil to the next growing season.

$$\text{Rate to be spread (lb/ac)} = \frac{\text{required nutrient (lb/ac)}}{\text{\% of nutrient in fertilizer}} \times 100$$

Example: Suppose that the required amount of nitrogen is 98 lb/ac. If the fertilizers you want to use contains 15% nitrogen, you would want to spread:

(98 ÷ 15) x 100 or 653 lb/ac. This can be rounded off to 650 lb/ac of fertilizer.

Similarly:

Fertilizer	% Nitrogen	Amount of Fertilizer to Provide 98 lb/ac of N
12-24-24	12	(98 ÷12) x 100 = 817
15-15-15	15	(98 ÷15) x 100 = 653
10-20-20	10	(98 ÷10) x 100 = 980
15-5-15	15	(98 ÷15) x 100 = 653
12-24-16	12	(98 ÷12) x 100 = 817

The situation becomes more complex when there are 3 nutrients to work on. An example is taken from the previously discussed data sheet:

		Required Applications		
		N	P_2O_5	K_2O
Field No. 1	Turnip	98	169	134

From the previous discussion, we know:

Type of Fertilizer	Ratio $N = P_2O_5 = K_2O$			Amount Needed to Provide 98 lb/ac of N
12-24-24	1	2	2	817 lb/ac
15-15-15	1	1	1	653 lb/ac
10-20-20	1	2	2	980 lb/ac
15-5-15	3	1	3	653 lb/ac
12-24-16	3	6	4	817 lb/ac

Using the above, 817 lb/ac of 12-24-24 (1-2-2) will give us: 98 lb/ac of N.

(98 x 2) or 196 lb/ac of P_2O_5
(98 x 2) or 196 lb/ac of K_2O

Similarly:

Fertilizer	N	P_2O_5	K_2O
653 lb/ac of 15-15-15	98	(98 x 1) or 98	(98 x 1) or 98
980 lb/ac of 10-20-20	98	(98 x 2) or 196	(98 X 2) or 196
653 lb/ac of 15-5-15	98	(98 x 1/3) or 33	(98 x 1) or 98
817 lb/ac of 12-24-16	98	(98 x 6/3) or 196	(98 x 4/3) or 131

Comparing these calculations to the required applications:

Required Applications					Content of		
N	P_2O_5	K_2O	Fertilizer	Amount (lb/ac)	N	P_2O_5	K_2O
98	169	134	12-24-16	817	98	196	131

We see that 817 lb/ac of 12-24-16 best meets the nutrient requirements. Finally, because the fertilizer is being used on turnips, boron should be added.