

2010 AFL Fertilizer Recommendation Update

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Agri-Food Laboratories soil fertilizer recommendations style has been updated as of February 1st, 2010.

Soil reports with AFL recommendations for P₂O₅ and K₂O will now have a slightly different look, as they have been split into the crop removal, and build portions for phosphorus and potassium (see figure 1). The change has been made for informative purposes, as the grower will now have the ability to discern the difference between the crop removal rate (based on yield goal) and the recommended build rate. The grower may also find this informative for determining manure application rates. It is advisable to use the AgTest Manure Analysis to determine nutrient credits in the applied manure.

The new recommendations will offer the grower options while managing nutrients, and will be a better tool for decision-making no matter the fertilizing strategy. Where it is desirable to maintain soil test values, the grower can choose to apply only the crop removal rate. In cases where soils test low for nutrients and it is considered advantageous to build levels, the grower can add together both the removal rate and the recommended rate. Although the rates recommended by Agri-Food Laboratories are considered economical fertilization, the growers have the choice of customizing their rates based on the information provided and their own knowledge of crop response and input costs.

With soils that test high in fertility, the choice may be made to only apply a portion of crop removal so that soil test values are drawn down. It takes approximately 35 pounds per acre of phosphate, and 19 pounds per acre of potash, being removed by the crop to draw down the soil test values by 1 ppm.

Figure 1.

Agri-Food Nutrient Management Guidelines			N	P2O5		K2O	
Sample ID	Crop to be Grown	Yield Goal		Rec	Removal	Rec	Removal
1	soybeans	1 bu/ac		27	1	38	1
	corn, sweet	2 ton/ac	110	45	3	38	10
	wheat, winter	80 bu/ac	75	27	47	38	32
2	corn, sweet	5 ton/ac	150	36	7	74	25
	peas	1 ton/ac	14	27	5	74	15

Soil Test Ratings

It is important to remember that OMAFRA recently changed the rating of soil tests from a fertility level rating (low, med, high, etc) to a one based on the likelihood of economical response to additional fertilizer (see chart below).

Soil Fertility (Old rating)	Response Rating (New Rating)	Probability of Profitable Response	Optimum Fertilizer Rates
Low (L)	High Response (HR)	High (most cases)	High
Medium (M)	Medium Response (MR)	Moderate (1/2 of cases)	Medium
High (H)	Low Response (LR)	Low (a few cases)	Low
Very High (VH)	Rare Response (RR)	Rare (very few cases)	Very Low
Excessive (E)	No Response (NR)	None, may reduce yield	Nil

Phosphorus Recommendations

Crop specific phosphate recommendations will be shown for samples that are rated High and Medium response. Where soil tests approach the Low and Rare response ratings, only the crop removal portion will be shown, as the Nutrient Management Act allows application on high fertility soils at rates up to those matching crop removal. It is the grower's decision to apply less if desired.

Potassium Recommendations

For each soil sample, a Target K is determined based on the soil CEC, using the equation:
 $2.5 \times \text{CEC} + 90$

Where the Target K is higher than the soil test value, a recommendation will be shown in addition to crop removal. Where soil test K is higher than the Target K, only crop removal will be shown. Therefore, the potash recommendation will be the same value for all crops for a given soil sample, however potash application rates will differ when the crop removal portion is added to the recommended rate.

OMAFRA recommendations remain unchanged.