



Spring 2003, No. 2

### WHY ALL THE FUSS OVER MANURE NUTRIENTS?

**Times have changed in the production of livestock on the farm.** Production of meat, eggs, and milk has shifted from small amounts on many farms to intensive management on few farms. Because of the small land base which many large livestock operations occupy, they transport feed ingredients from great distances to meet their needs. The imported feed contains nutrients that end up in the food products sold off the farm and in the manure left behind.

**Manure nutrients can play a significant role in building soil fertility.** Many soils in North America are deficient in nitrogen and phosphorus, and application of livestock manure can help meet crop requirements and build the soil's nutrient supply capability and productivity. Most manure application guidelines are based on application rates that meet crop nitrogen or phosphorus removal rates either annually, or once every three years.

**The costs of hauling manure are high.** In an ideal world we would redistribute these manure nutrients back to the farms the feed grains came from. However, given the water content of most manure there is a high cost associated with transporting it any great distance. As a result, over application of manure, leading to excessively high soil nutrient levels, has become a major challenge in some areas.

**Reports on the land area where manure has been applied are available.** The 2001 Census of Agriculture in Canada provides us with information on the area over which livestock producers report spreading manure in 2000. As a percentage of the total land in crop and fallow, manure was applied to 4.8% of this area in Manitoba, 1.4% in Saskatchewan, 4.7% in Alberta, and 14.4% in British Columbia. As a percentage of total crop and pasture land, commercial fertilizers were applied to 69% of the land in Manitoba, 59% in Saskatchewan, 56% in Alberta and 41% in British Columbia. Obviously, these Census statistics illustrate that manure plays a small role in meeting the nutrient needs of crops in this region.

**While the area where manure is applied is relatively minor, the nutrient application rates are high.** The PPI/PPIC/FAR publication *Plant Nutrient Use in North American Agriculture* (see [www.ppi-ppic.org/nutrients](http://www.ppi-ppic.org/nutrients)), includes estimates of the recoverable manure nutrients for Canadian provinces from livestock populations reported in 2000 and 2001. Using the manure application acreage reported in the 2001 Census of Agriculture, and estimated recoverable manure nutrients, we get a better picture of how nutrients can accumulate in excess of crop requirements. Our estimate is that, on average, manure nutrients were applied at a rate of 37 pounds of nitrogen and 63 pounds  $P_2O_5$  per acre, where manure was applied in Manitoba. In Saskatchewan, the rates were 34 pounds for nitrogen and 53 pounds for  $P_2O_5$ ...in Alberta, 57 pounds nitrogen and 87 pounds  $P_2O_5$ /A...and in British Columbia, 69 pounds of nitrogen and 81 pounds  $P_2O_5$  per acre.

**Making the most of manure nutrients requires diligent use of nutrient management tools.** Soil testing, calculated nutrient inputs and crop removal, and careful attention to the sensitivity of adjacent lands and water—all form the basis for an effective manure management plan. Every effort must be made to assist livestock producers in developing and implementing manure management plans that minimize environmental impact, while at the same time building soil productivity with this valuable nutrient resource.

—AMJ—

For more information, contact Dr. Adrian M. Johnston, Western Canada Director, PPI, 12-425 Pinehouse Drive, Saskatoon, Saskatchewan, Canada S7K 5K2. Phone: (306) 956-0619. E-mail: [ajohnston@ppi-ppic.org](mailto:ajohnston@ppi-ppic.org).