

## Nutrients Removed in Harvested Portion of Crop

*Last Update: 10/28/2010*

The values presented in the following table are estimates of nutrient removal or the quantity of nutrients removed in the harvested portion of the crop. They should not be confused with nutrient uptake which refers to the total nutrients absorbed by the growing crop. Tabular values are approximations based on the most recent information available to IPNI. Actual nutrient removal may vary by 30% or more depending on the specific growing conditions of the crop such as soil fertility level, yield, soil moisture, crop vigor, and limiting nutrients (interactions) as well as the actual crop variety and fertilizer program. Changes to soil fertility may differ from the amount removed by the crop. In some instances, weathering of soil minerals and organic matter may compensate for part of the nutrient removal by crops. In other instances, nutrients may be chemically fixed by the soil or lost by leaching, and the loss of nutrients will exceed crop removal.

| <b>Field Crops<sup>2</sup></b> | <b>Unit</b> | <b>N</b> | <b>P<sub>2</sub>O<sub>5</sub></b> | <b>K<sub>2</sub>O</b> |
|--------------------------------|-------------|----------|-----------------------------------|-----------------------|
| Barley (spring)                | lb/bu       | 0.99     | 0.40                              | 0.32                  |
| Canola                         | lb/bu       | 1.88     | 0.91                              | 0.46                  |
| Corn (grain)                   | lb/bu       | 0.70     | 0.38                              | 0.27                  |
| Corn (grain)                   | lb/cwt      | 1.25     | 0.68                              | 0.48                  |
| Corn (silage, 67% water)       | lb/ton      | 9.70     | 3.10                              | 7.30                  |
| Cotton (lint)                  | lb/bale     | 32.00    | 14.00                             | 19.00                 |
| Flax                           | lb/bu       | 2.00     | 1.10                              | 0.65                  |
| Lentils                        | lb/bu       | 2.00     | 0.62                              | 1.10                  |
| Oats                           | lb/bu       | 0.77     | 0.28                              | 0.19                  |
| Peanuts <sup>1</sup>           | lb/ton      | 70.00    | 11.00                             | 17.00                 |
| Peas (field)                   | lb/bu       | 2.40     | 1.20                              | 0.71                  |
| Rice                           | lb/bu       | 0.57     | 0.30                              | 0.16                  |
| Rice                           | lb/cwt      | 1.27     | 0.67                              | 0.35                  |
| Safflower                      | lb/cwt      | 5.00     | 1.20                              | 3.80                  |
| Sorghum (grain)                | lb/cwt      | 1.18     | 0.70                              | 0.48                  |
| Soybeans <sup>1</sup>          | lb/bu       | 3.80     | 0.84                              | 1.30                  |
| Sugarbeets                     | lb/ton      | 3.70     | 2.20                              | 7.30                  |
| Sugarcane                      | lb/ton      | 2.00     | 1.25                              | 3.50                  |
| Sunflower                      | lb/cwt      | 2.70     | 0.97                              | 0.90                  |
| Tobacco (flue)                 | lb/cwt      | 2.80     | 0.50                              | 5.20                  |
| Tobacco (burley)               | lb/cwt      | 4.30     | 0.43                              | 4.70                  |
| Wheat: 10% protein             | lb/bu       | 1.10     | 0.60                              | 0.34                  |
| 12% protein                    | lb/bu       | 1.30     | 0.60                              | 0.34                  |
| 14% protein                    | lb/bu       | 1.50     | 0.60                              | 0.34                  |

### **Forage Crops**

|                            | <b>Unit</b> | <b>N</b>                | <b>P<sub>2</sub>O<sub>5</sub></b> | <b>K<sub>2</sub>O</b> |
|----------------------------|-------------|-------------------------|-----------------------------------|-----------------------|
|                            |             | <i>Dry matter basis</i> |                                   |                       |
| Alfalfa <sup>1</sup>       | lb/ton      | 51                      | 12                                | 49                    |
| Bahiagrass                 | lb/ton      | 43                      | 12                                | 35                    |
| Bermudagrass               | lb/ton      | 46                      | 12                                | 50                    |
| Bromegrass                 | lb/ton      | 32                      | 10                                | 46                    |
| Clover <sup>1</sup> -grass | lb/ton      | 50                      | 15                                | 60                    |
| Fescue                     | lb/ton      | 37                      | 12                                | 54                    |
| Orchardgrass               | lb/ton      | 36                      | 13                                | 54                    |
| Sorghum-sudan              | lb/ton      | 30                      | 9.5                               | 34                    |
| Timothy                    | lb/ton      | 25                      | 11                                | 42                    |
| Vetch <sup>1</sup>         | lb/ton      | 57                      | 15                                | 49                    |

### **Vegetable Crops<sup>2</sup>**

|                |        |      |      |      |
|----------------|--------|------|------|------|
| Broccoli       | lb/cwt | 0.44 | 0.17 | 0.42 |
| Cabbage        | lb/cwt | 0.39 | 0.09 | 0.36 |
| Celery         | lb/cwt | 0.19 | 0.11 | 0.50 |
| Lettuce        | lb/cwt | 0.24 | 0.08 | 0.50 |
| Potatoes       | lb/cwt | 0.35 | 0.15 | 0.56 |
| Squash         | lb/cwt | 0.42 | 0.10 | 0.60 |
| Sweet potatoes | lb/cwt | 0.52 | 0.23 | 1.00 |
| Tomatoes       | lb/ton | 2.50 | 0.92 | 5.70 |

### **Fruit and Nut Crops<sup>2</sup>**

|                    |        |     |     |      |
|--------------------|--------|-----|-----|------|
| Almonds (in shell) | lb/ton | 130 | 50  | 170  |
| Apples             | lb/ton | 6.0 | 3.6 | 16.8 |
| Cantaloupe         | lb/ton | 7.3 | 2.3 | 13.0 |
| Grapes (table)     | lb/ton | 8.3 | 3.0 | 13.0 |
| Oranges            | lb/ton | 8.8 | 1.8 | 11.0 |
| Peaches            | lb/ton | 6.3 | 2.7 | 8.0  |
| Pears              | lb/ton | 5.7 | 1.7 | 6.3  |
| Prunes             | lb/ton | 6.0 | 2.0 | 8.7  |

<sup>1</sup> Legumes obtain most of their N from the air.

<sup>2</sup> At same moisture content as standard yield measurement for the specific crop.