



## NUTRIENT MANAGEMENT ACCOUNTABILITY General Potato Nitrogen Recommendation Worksheet P.E.I. Department of Agriculture

This worksheet provides general fertilizer nitrogen recommendations for potatoes. These recommendations require a soil test for organic matter content and a manure or compost analysis. If no manure or compost analysis is available, typical values for different types of manure or compost can be used.

### Step 1: Crop N requirement (R)

Enter base value (in kg N/ha) from Table 1 based on potato variety \_\_\_\_\_ (a)  
 Enter 1.0 for full season crops or 0.9 for early harvested or seed crops \_\_\_\_\_ (b)  
 Enter 0 if planted on or before May 25; 11 if planted May 26 to June 1; 22 if planted June 2 to June 8; 33 if planted June 9 or later \_\_\_\_\_ (c)

$$R \text{ in kg N/ha} = [ \text{_____ (a)} \times \text{_____ (b)} - \text{_____ (c)} ] \text{_____ (1)}$$

**(SKIP TO STEP 4 IF MANURE OR COMPOST IS NOT BEING APPLIED)**

### Step 2: Credit manure or compost ammonium nitrogen ( $M_{AMM}$ ) in kg N/ha (Important to have a proper manure analysis)

Enter manure or compost application rate:  
 in gallons/acre \_\_\_\_\_ (a) and (b) = 89,000  
 OR in m<sup>3</sup>/ha \_\_\_\_\_ (a) and (b) = 1,000  
 OR in tons/acre \_\_\_\_\_ (a) and (b) = 445  
 OR in tonnes/ha \_\_\_\_\_ (a) and (b) = 1,000

Enter manure ammonium concentration in ppm (line 101 from Table 2) \_\_\_\_\_ (c)  
 Enter manure ammonium availability coefficient (from Table 3) \_\_\_\_\_ (d)

$$M_{AMM} \text{ in kg N/ha} = \text{_____ (a)} \times \text{_____ (c)} \times \text{_____ (d)} \div \text{_____ (b)} = \text{_____ (2)}$$

### Step 3: Credit manure or compost organic nitrogen ( $M_{ORG}$ ) in kg N/ha (Important to have a proper manure analysis)

Enter (a) and (b) from Step 2: \_\_\_\_\_ (a) \_\_\_\_\_ (b)  
 Enter manure organic N concentration in ppm (line 104 from Table 2) \_\_\_\_\_ (c)  
 Enter manure organic N availability coefficient (from Table 4) \_\_\_\_\_ (d)

$$M_{ORG} \text{ in kg N/ha} = \text{_____ (a)} \times \text{_____ (c)} \times \text{_____ (d)} \div \text{_____ (b)} = \text{_____ (3)}$$

### Step 4: Credit crop grown in the previous year (C)

	Alfalfa	Red clover	Red Clover (2nd yr)	Soybean (seeding yr.)	Annual ryegrass
Poor Stand :	0	0	0	10	0
Fair Stand :	40	20	10	10	0
Good Stand :	80	40	20	10	-15

$$C \text{ in kg N/ha} = \text{_____ (4)}$$

### Step 5: Credit soil organic matter content (S)

Soil organic matter greater than or equal to 3.5% 15  
 Soil organic matter less than 3.5% 0  
 S in kg N/ha = (enter appropriate value from above) = \_\_\_\_\_ (5)

### Step 6: Calculate general nitrogen recommendation ( $F_N$ ) in kg N/ha

(Multiply  $F_N$  by 0.89 to get fertilizer nitrogen recommendation in units of lb N/ac)

$$F_N \text{ in kg N/ha} = (1) - (2) - (3) - (4) - (5) = \text{_____ (6)}$$

**NUTRIENT MANAGEMENT ACCOUNTABILITY  
Potato Nitrogen Recommendation Worksheet Tables:**

**Table 1. Base values for different potato varieties**

Variety	Base value kg N/ha (lb N/ac)
Russet Burbank	208 (185)
Shepody	180 (160)
Russet Norkotah*	200 (180)
Superior	190 (170)
Prospect	135-150 (120-135)
Goldrush	190 (170)
Early table	135 (120)
Other mid-season	160-180 (140-160)
Other late season	180-200 (160-180)
Other low N requirement	135-160 (120-140)

\*For standard clone, reduce value for new clonal selections

**Table 3. Manure or compost ammonium nitrogen availability coefficients**

Application	Liquid./Semi-solid. Manure		Solid Manure or compost	
	Spring / Summer	Fall*	Spring / Summer	Fall*
Injected	1.00	0.80	1.00	0.90
Incorp. 1 day	0.75	0.60	0.80	0.77
Incorp.2 days	0.70	0.56	0.75	0.68
Incorp.3 days	0.65	0.52	0.65	0.59
Incorp.4 days	0.60	0.48	0.60	0.54
Incorp.5 days	0.55	0.44	0.55	0.50
Not incorp.- bare soils	0.34	0.27	0.50	0.45
Not incorp.- pretilled soils	0.70	0.56	0.70	0.63
Not incorp.- crop residues	0.50	0.40	0.70	0.63
Not incorp.- standing crops	0.70	0.56	0.60	0.54
Not incorp.- late fall	---	0.60	---	0.68

\* Fall applied - late October / early November

**Table 2. Manure or compost analysis calculation table.**

Enter values from your manure or compost analysis on an "as received" basis:

NH<sub>4</sub>-N (ppm) = \_\_\_\_\_ (101)

Nitrogen (%) = \_\_\_\_\_ (102)

Carbon (%) = \_\_\_\_\_ (103)

Calculate the following:

Organic N (ppm) = [(line 102) x 10,000] - (line 101)  
= \_\_\_\_\_ (104)

C:N ratio = (line 103) ÷ (line 102) = \_\_\_\_\_ (105)

**Table 4. Manure or compost organic nitrogen availability coefficients**

Manure Type	Spring applied	Fall
Poultry manure:	0.30	0.30
Compost or other livestock manure:		
C:N < 15	0.20	0.30
C:N 15 to 25 (high in bedding)	0.10	0.10
C:N > 25 (very high in bedding)	-0.20	0.10

This worksheet is a result of a collaborative effort by the PEI Department of Agriculture, NB Department of Agriculture, Agriculture and Agri-Food Canada, Cavendish Farms and McCain Foods. For additional information regarding nitrogen recommendations for potatoes or assistance with completing this worksheet contact the P.E.I. Department of Agriculture, Barry Thompson at 368-6366.