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

Enter base value (in $\mathrm{kg} \mathrm{N} / \mathrm{ha}$ ) from Table 1 based on 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; 10 if planted May 26 to June 1; 20 if planted June 2 to June 8; 30 if planted June 9 or later $\qquad$ (c)
R in $\mathrm{kg} \mathrm{N} / \mathrm{ha}=[$ $\qquad$ (a) $x$ $\qquad$ (b) - $\qquad$ (c) ]

Step 2: Credit manure or compost ammonium nitrogen ( $\mathrm{M}_{\text {АММ }}$ ) in $\mathrm{kg} \mathrm{N} / \mathrm{ha}$
Enter manure or compost application rate:

| $\quad$ in gallons/acre | (a) | and (b) $=89,000$ |
| :--- | :--- | :--- |
| $\boldsymbol{O} \boldsymbol{R}$ in $\mathrm{m}^{3} / \mathrm{ha}$ |  |  |
| $\boldsymbol{O R}$ in tons/acre | (a) | and (b) $=1,000$ |
| $\boldsymbol{O} \boldsymbol{R}$ in tonnes/ha | (a) | and (b) $=445$ |
|  | (a) | and (b) $=1,000$ |

Enter manure ammonium concentration in ppm (line 101 from Table 2) $\qquad$ (c)

Enter manure ammonium availability coefficient (from Table 3) $\qquad$ (d)
$\mathrm{M}_{\text {АМм }}$ in $\mathrm{kg} \mathrm{N} / \mathrm{ha}=$ $\qquad$ (a) $x$ $\qquad$ (c) x $\qquad$ (d) $\div$ $\qquad$ (b) $=$ $\qquad$

## Step 3: Credit manure or compost organic nitrogen ( $M_{\text {ORG }}$ ) in $\mathrm{kg} \mathrm{N} / \mathrm{ha}$

Enter (a) and (b) from Step 2:
(a)
(b)

Enter manure organic N concentration in ppm (line 104 from Table 2) $\qquad$ (c)

Enter manure organic N availability coefficient (from Table 4) $\qquad$ (d)
$\mathrm{M}_{\mathrm{ORG}}$ in $\mathrm{kg} \mathrm{N} / \mathrm{ha}=$ $\qquad$ (a) $x$ $\qquad$ (c) x $\qquad$ (d) $\div$ $\qquad$ (b) $=$ $\qquad$

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

|  | Alfalfa | Red clover (2nd yr) | Red Clover (seeding yr) | Soybean | Annual ryegrass |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Less than $1 / 3$ stand: | 0 | 0 | 0 | 0 | 0 |
| Between $1 / 3$ and $2 / 3$ stand: | 40 | 20 | 10 | 0 | 0 |
| More than 2/3 Stand: | 80 | 40 | 20 | 10 | -15 |
| C in kg N/ha = ............... |  | ......... | .............. | ......... | $\ldots . . . . . . . . .$. |

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

Soil organic matter greater than or equal to $3.5 \%$
Soil organic matter between $2.5 \%$ and $3.5 \%$0

Soil organic matter less than or equal to $2.5 \%$ -15
S in $\mathrm{kg} \mathrm{N} / \mathrm{ha}=($ enter appropriate value from above $)=$

## Step 6: Calculate general fertilizer nitrogen recommendation ( $F_{N}$ ) in $\mathbf{k g} \mathrm{N} / \mathrm{ha}$

(Multiply $\mathrm{F}_{\mathrm{N}}$ by 0.89 to get fertilizer nitrogen recommendation in units of $\mathrm{lb} \mathrm{N} / \mathrm{ac}$ )
$\mathrm{F}_{\mathrm{N}}$ in $\mathrm{kg} \mathrm{N} / \mathrm{ha}=(1)-(2)-(3)-(4)-(5)=$
This is your general fertilizer nitrogen recommendation. If you used the SMN test, continue on the second page of this insert.

## SMN Calculation Worksheet



## Step 8: Credit ammonium in SMN test $\left(S M N_{\text {AM }}\right)$ in $\mathrm{kg} \mathrm{N} / \mathrm{ha}$

Enter SMN ammonium test value in ppm $\qquad$ (a)

If (a) $\leq 9$, then SYN $_{\text {AM }}=0$
If (a) $>9$, then $\mathrm{SMN}_{\text {wM }}=[$ $\qquad$ (a) -9$] \times 1.9=$ $\qquad$ (b)
$\mathrm{SMN}_{\text {Амм }}$ in $\mathrm{kg} \mathrm{N} /$ ha $=($ enter 0 or (b) as appropriate $)=$ $\qquad$

## Step 9: Credit nitrate in SMN test $\left(S M N_{N I T}\right)$ in $\mathrm{kg} \mathrm{N} / \mathrm{ha}$

Enter SMN nitrate test value in ppm $\qquad$ (a)

If (a) $\leq 6$, then $S M N_{N I T}=0$
If (a) $>6$, then $\mathrm{SMN}_{\mathrm{NIT}}=$ [ $\qquad$ (a) -6$] \times 1.9=$ $\qquad$ (b)
$\mathrm{SMN}_{\mathrm{NIT}}$ in $\mathrm{kg} \mathrm{N} / \mathrm{ha}=($ enter 0 or (b) as appropriate $)=$ $\qquad$

## Step 10: Credit soil organic matter content (S)

S in $\mathrm{kg} \mathrm{N} / \mathrm{ha}=$ $\qquad$


Step 11: Calculate nitrogen recommendation ( $F_{\text {SN }}$ ) based on the SMN test in $\mathbf{k g} \mathrm{N} / \mathrm{ha}$
This is your fertilizer nitrogen recommendation using the SMN test in kg N/ha
$\mathrm{F}_{\text {SM }}$ in $\mathrm{kg} \mathrm{N} / \mathrm{ha}=(\mathbf{7})-(\mathbf{8})-(\mathbf{( 9 )}-\mathbf{( 1 0 )}=$
Step 12: Compare to general fertilizer nitrogen recommendation
Enter $\mathrm{F}_{\mathrm{SMN}}$ from line 11
(a)

Enter $\mathrm{F}_{\mathrm{N}}$ from line 6 on previous page $\qquad$ (b)

Fertilizer nitrogen recommendation is (a) or (b), whichever is lower $=$
(Multiply $\mathrm{F}_{\mathrm{N}}$ by 0.89 to get fertilizer nitrogen recommendation in units of $\mathrm{lb} \mathrm{N} / \mathrm{ac}$ )

