

Use one worksheet per field or management zone. Use kg N/ha throughout. Keep the supporting soil test, manure/ compost analysis and legume cover crop information with the worksheet.

Field / zone		Crop	
Area (ha)		Soil-test date	
Previous crop		Legume cover crop	
Manure source		Analysis date	
Compost source		Analysis date	

Step 1: Crop N requirement

Item	Where the number comes from	N (kg/ha)
Crop N requirement	Current soil test / crop recommendation	

Step 2: Legume cover crop N credit

Item	Where the number comes from	N (kg/ha)
Legume cover crop N credit	Use table 1 below or a field-specific estimate	

Reference Table 1: Rule-of-thumb legume cover crop N credits

Following crop	N credit
Crop other than corn	45 kg N/ha
Corn	80 kg N/ha

Use only where the legume stand is well established and has at least approximately 2.2 t/ha (1 ton/ac) of above-ground dry matter at termination.

Step 3. Manure calculation

A. Current-year plant-available manure N

Item	Calculation / input	Result
Total N	From manure analysis, as applied	%
NH ₄ -N	From manure analysis, as applied	%
Organic N	Total N – NH ₄ -N	%
Manure application rate	Solid: t/ha; liquid: m ³ /ha	
NH ₄ -N applied	NH ₄ -N % × 10 × application rate	kg N/ha
NH ₄ retention factor	From ammonium-N retention table 2 below	
Available NH ₄ -N	NH ₄ -N applied × retention factor	kg N/ha
Organic N applied	Organic N % × 10 × application rate	kg N/ha
Organic-N availability factor	From manure N availability table 3 below	
Available organic N	Organic N applied × availability factor	kg N/ha
Plant-available manure N	Available NH ₄ -N + available organic N	kg N/ha

Reference Table 2: Ammonium-N retention from spring-applied manure

Application / incorporation	Proportion retained
Injected / covered	1.00
Incorporated within 1 day	0.75
Incorporated within 3 days	0.50
Incorporated within 5 days	0.40
Not incorporated	0.35

For non-injected manure, add 0.10 under cool conditions (<10°C) and subtract 0.10 under warm conditions (>20°C).

Reference Table 3: Estimated organic N availability from manure

Manure category	Application time	Year 1	Year 2	Year 3
Poultry	Before June 15	0.30	0.15	0.05
Poultry	June 15-Sept 15	0.15	0.20	0.05
Poultry	After Sept 15	0	0.30	0.05
Other livestock, C:N <15	Before June 15	0.20	0.10	0.05
Other livestock, C:N <15	June 15-Sept 15	0.10	0.20	0.05
Other livestock, C:N <15	After Sept 15	0	0.30	0.05
C:N 15-25 (high bedding)	Before June 15	0.10	0.20	0.10
C:N 15-25 (high bedding)	June 15-Sept 15	0	0.20	0.10
C:N 15-25 (high bedding)	After Sept 15	0	0.10	0.10

B. Residual manure N from previous applications

Item	Calculation / input	Result
Original organic N applied	From previous manure application	kg N/ha
Year 2 or Year 3 factor	From manure N availability table 3 above	
Residual manure N credit	Original organic N applied × factor	kg N/ha

Step 4. Compost calculation

Item	Calculation / input	Result
Dry matter	From compost analysis	%
Total N	Use as-applied value; convert from dry basis if needed	%
Compost application rate	t/ha	
Total N applied	N % × 10 × t/ha	kg N/ha
First-year availability factor	From compost N availability table 4 below	
Plant-available compost N	Total N applied × factor	kg N/ha

Reference Table 4: Estimated first-year plant-available N from compost

C:N ratio	Total N (% dry wt.)	Available N as % of total N	Available N as % of organic N
Below 10:1	Above 2%	10%	5%
10:1-20:1	1-2%	5%	2%
Above 20:1	Below 1%	0%	0%

Step 5. Calculate total N credits and remaining fertilizer N requirement

Item	Source location	N (kg/ha)
Legume cover crop N credit	Step 2 result	
Current-year plant-available manure N	Step 3A result	+
Residual manure N credit	Step 3B result	+
Plant-available compost N	Step 4 result	+
Other documented N credit, if applicable	Use only supported N not already counted	+
Total applicable N credits	Sum of all N credits	

Item	N (kg/ha)
Crop N requirement (from step 1)	
Total applicable N credits	–
Remaining fertilizer N requirement	

Step 6. Fertilizer application plan

Remaining fertilizer N requirement	kg N/ha
Fertilizer product	
Fertilizer analysis	
Product N fraction	
Product application rate (kg/ha) = remaining fertilizer N (kg N/ha) ÷ product N fraction	kg/ha
Timing / placement	

Important Notes

- Use current crop recommendations and recent manure/compost analyses where possible.
- Use plant-available N, not total manure or compost N, as the fertilizer credit.
- Use the simple legume credit only when the legume has at least approximately 2.2 t/ha (1 ton/ac) of above-ground biomass on a dry-matter basis at termination. If a field-specific biomass-based credit has already been determined, use that value instead; do not combine both.
- Do not double-count residual N or other N already included in another recommendation or calculation.
- N availability from organic materials is an estimate and varies with temperature, moisture, timing and management.
- Manure and compost also supply P, K and other nutrients; check the whole nutrient balance before choosing an application rate.
- In-season weather and crop conditions may justify reassessing the original N plan.
- This worksheet supports quick field-level planning; it does not replace a comprehensive Nutrient Management Plan where one is needed.