

Project	Mixed Dairy Manure and Fertilizer Corn Scenario	Run ID	realistic-mixed-nutrients-001
Location	Lancaster County, Pennsylvania	Created	August 10, 2026 at 16:29 UTC
Management	Corn grain 4,000 gal/ac injected dairy manure (100 N, 18 P) 300 lb/ac 10-20-10 starter (30 N, 26.2 P) UAN sidedress (80 N)	Period	365 modeled days

Annual nutrient indicators

+146.81 Net field N balance (lb/ac/yr)	+35.70 Net field P balance (lb/ac/yr)	241.57 Crop N uptake (lb/ac/yr)	0.00 Biological N fixation (lb/ac/yr)
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Management-cycle nutrient balance

Budget item	Nitrogen (lb/ac)	Phosphorus (lb/ac)
Beginning modeled pools	2155.10	841.37
Fertilizer and manure additions	210.00	44.20
Biological N fixation	0.00	0.00
Crop demand supplied from unmeasured soil (modeled)	0.00	0.00
Plant biomass returned to surface	155.53	26.70
Roots returned belowground	43.02	7.39
Harvest export	43.02	7.39
Environmental loss	20.17	1.11
Ending modeled pools	2301.91	877.08
Change in modeled pools	146.81	35.70
Net field balance (external inputs – exports/losses)	146.81	35.70

Annual loss pathways

Pathway	Amount (lb/ac/yr)
Sediment-bound N	2.246
Dissolved runoff N	0.268
Nitrate leaching	5.248
Gaseous N	12.407
Sediment-bound P	1.047
Dissolved runoff P	0.067

Model assumptions and audit

Modeled-pool mass balance: **closed**. N residual 0.0000 lb/ac; P residual 0.0000 lb/ac.

Biological N fixation is modeled only for an actively growing legume. The APEX-based process uses remaining crop N demand after mineral-soil uptake, applies soil-water stress, and enforces the 10 kg/ha/day profile limit. Phosphorus is not fixed.

Screening-level planning estimate in elemental N and P. This report is not a fertilizer recommendation, regulatory nutrient-management plan, or substitute for soil, manure, water, or tissue testing.

Review and digital signature

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