

Nutrient Management Plan Scenario: Dairy

Farm Background

Joe Farmer is a dairy farmer in southwest Wisconsin. Joe is looking to create a nutrient management plan for his operation. He feels like he manages his crops and nutrients fairly well but thinks he has the potential to do better. He has provided a detailed background of his current operation and current numbers. Joe is looking for recommendations on things he could be doing better without drastically changing his whole operation.

He milks roughly 60 cows and raises all of the future herd on farm. He operates on around 250 acres of tillable land raising corn silage, alfalfa, and cover crops over a 6 year period. He uses primarily no-till except on the seeding year of alfalfa (spring chisel, disk) and usually plants on the contour or cross-slope depending on field size and location. The manure he generates on the farm is collected as a solid and gets daily hauled during the year. He uses a combination of synthetic fertilizer and manure to provide nutrients for his crops. The local coop spreads his fertilizer and likes to keep the product and rates similar for same crop types. He utilizes cover crops after corn silage comes off and usually spreads manure on them over winter. He applies on intermittent strips on 50% of the field and does not apply no more than 30 lbs of P₂O₅ during the winter. Manure also gets applied at a light rate during the summer on 3rd and 4th year alfalfa. New seeding alfalfa gets a heavier rate of manure which is usually incorporated within 3 days of planting. Joe Farmer is adding "Field 10" to his rotation which is an 11 acre field located on the Northeast corner of Maple Rd and State Rd 133.

Note: When mapping fields make sure that wells and other field features (direct conduits to water) are represented on the map.

Livestock

60 – Dairy Cows 1200 lb milk 100lb/day

15 – Dairy Dry Cows 1200 lb

15 – Dairy Heifer 100 lb

15 – Dairy Young Stock 400-800 lb

15 – Dairy Calves

Fertilizer

Liquid 10-34-0

Urea 46-0-0

Polymer coated urea 44-0-0

Potash 0-0-61

Ammonium Sulfate 21-0-0-24s

Diammonium Phosphate 18-46-0

Crop Rotation

Corn Silage (Cs) – Cover Crop Oct. overwinter (Ccow)– Corn Silage(Cs) – Cover Crop Oct. overwinter (Ccow) – Alfalfa Seeding (Alfs)- Alfalfa (Alf) – Alfalfa (Alf) – Alfalfa (Alf)

Field 1 Cs -Ccow-Cs-Ccow-Alfs-Alf-Alf-Alf	Field 6 Cs -Ccow-Cs-Ccow-Alfs-Alf-Alf-Alf
Field 2 Cs-Ccow-Cs-Ccow- Alfs -Alf-Alf-Alf	Field 7 Cs-Ccow-Cs-Ccow-Alfs-Alf-Alf- Alf
Field 3 Cs-Ccow- Cs -Ccow-Alfs-Alf-Alf-Alf	Field 8 Cs-Ccow-Cs-Ccow- Alfs -Alf-Alf-Alf
Field 4 Cs-Ccow-Cs-Ccow-Alfs- Alf -Alf-Alf	Field 9 Cs-Ccow-Cs-Ccow-Alfs-Alf- Alf -Alf
Field 5 Cs-Ccow-Cs-Ccow-Alfs-Alf- Alf -Alf	Field 10 Cs-Ccow-Cs-Ccow-Alfs- Alf -Alf-Alf

Fertilizer Mixes

Crop	Fertilizer Type	Timing	Unicorp/Incorp	Rate (lbs)
Corn Silage after Alfalfa	Ammonium Sulfate	Spring	Unicorp	100
	Potash	Spring	Unincorp	200
	Polymer Coated Urea	Spring	Unincorp	100
	10-34-0	Spring	SubSurface	10 gal
	Manure	Spring	Unicorp	
Corn Silage after Corn Silage	Ammonium Sulfate	Spring	Unicorp	100
	Potash	Spring	Unicorp	200
	Urea	Spring	Unicorp	100
	Polymer Coated Urea	Spring	Unicorp	100
	10-34-0	Spring	Subsurface	10 gal
	Manure	Spring	Unicorp	
Alfalfa Seeding	Diammonium Phosphate	Spring	Unicorp	50
	Potash	Spring	Unicorp	150
	Ammonium Sulfate	Spring	Unicorp	75
	Manure	Spring	Incorp	
Alfalfa	Diammonium Phosphate	Spring	Unincorp	50
	Potash	Spring	Unincorp	300
	Ammonium Sulfate	Spring	Unincorp	100
	Manure (3rd and 4th yr)	Mid-Summer	Unincorp	
Cover Crop	Manure	Fall - Winter	Unicorp	

Manure Rates

Joe applies manure at different rates depending on crop. For corn silage he applies at a rate of 6-8 ton per acre in the spring. For new alfalfa seeding he incorporates manure at a rate of 6-10 ton per acre. He applies a light rate of 3-5 ton per acre mid summer on 3rd and 4th year alfalfa. His winter manure spreading plan usually involves applying on cover crop ranging from 6-8 ton per acre.

Soil Sample

Field 10 soil sample

Lab	Sample ID	Date	pH	OM	P	K	BpH
Rock River Labs	1	10-10-25	6.5	2.7	8	140	0
Rock River Labs	2	10-10-25	6.7	3.1	10	121	0