Attachment 1

(From Nutrient Management Rules, February 2001)

§1. §4. Nutrient Management Plans Required.

Unless exempted by statute or these rules, a person who owns or operates a farm shall have and implement an approved nutrient management plan for that farm if it meets one or more of the following criteria:

A. The farm confines and feeds 50 or more animal units at any one time;[3]
B. The farm utilizes more than 100 tons of manure per year not generated on that farm;
C. The farm is the subject of a verified complaint of improper manure handling[4];
D. The farm stores or utilizes regulated residuals.

The nutrient management plan must be prepared by a certified NMP specialist or approved and signed by a certified NMP specialist, pursuant to the provisions of §7 of these rules.

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[3]Note: This means that the farm confines and feeds any combination of animals totaling 50,000 lb. live animal weight. Without limitation, some examples are :

24 dairy cows (plus an equivalent number of young cattle) (1400 lb./mature animal)
35 dairy cows with no young cattle(1400 lb./animal)
50 beef cows (1000 lb./animal)
125 sows or finishing pigs (400 lb./animal)
1000 feeder pigs (50 lb./animal)
50 horses (1000 lb./animal)
500 sheep (100 lb./animal)
2800 turkeys (18 lb./animal)
10,000 laying hens/broilers (5 lb./animal).

[4]Note: Complaints are usually handled under the 'Right to Farm Law', 17 MRSA § 2805.

Attachment 2

MANURE SAMPLE INFORMATION FORM

Name:_____

Mailing address:_____ Voice no._____

Would you like your report faxed ?

City:_____State_____ZIP:_____ If so ,fax no._____

Sample name:_____ Date Sample:_____ .

Analysis includes: percent moisture, total nitrogen, ammonia nitrogen, total phosphate and total potash. Include a check payable to "Analytical lab",to cover the $25 analysis fee for each sample.

Results should be mailed back in are to two weeks time.

Check those items which best describe your situation:

KIND OF MANURE:

____Dairy ____Beef

____Swine ____Poultry

____Horse ____Sheep

____Other (List)_____

MATERIAL WILL BE HANDLED AS:

____Solid (results reported per ton)

____Liquid (reported per 1000 gal.)

Sampling Instructions

1) Timing: it is best to sample your manure at least one month before spreading. This allows time for lab turnaround and the development of a manure management program for your fields based on the results.

2) A PVC tube sampler is a handy device for sampling both semi-solid and liquid samples. Check with your local Extension or NRCS office. They may have one that you can borrow. If not,use a shovel or bucket.

3) Scrape any frozen or dried crust from the outside of the storage or pile. Agitate and throughly mix liquid storages before sampling.

4) The sample should be representative of the entire storage. Taking 3 to 4 subsamples uniformly distributed around the entire storage should be sufficient. Sample the entire depth profile of the storage if possible.

5) Solid/semi-sold samples: take 3 to 4 subsamples with a shovel or inner pipe only of the tube sampler. Be sure to include both manure and bedding in the sample. Place all subsamples in a clean bucket.

6) Liquid samples: take 3 to 4 subsamples with the sampling tube by inserting it vertically into the storage. Insert it with the holes covered, turn the inner tube to line up the slots and take the sample, turn it back to cover the slots and withdraw the tube. Empty the tube with the plug in the bottom into a clean bucket. Use a small bucket to sample liquid if no tube is available.

7) Thoroughly mix all subsamples in the bucket and fill a quart or pint mason jar. Leave at least one inch headspace in the jar and seal with an airtight screw-on lid. The headspace is critical to allow for expansion when the sample is frozen.

8) Keep the sample(s) cool until you can make arrangements for delivery to the lab. If you can't deliver the sample(s) to the lab on the same day, it is best to freeze it to prevent fermentation. It is possible to ship samples by UPS or Priority Mail if frozen and well insulated with newspaper. Ship early in the week. It may be possible to drop your sample(s) off at your local Extension or NRCS office for delivery to the lab. Check with them ahead of time to make arrangements.

Please mail form and sample(s) to: Analytical Lab
5722 Deering Hall
Orono ME 04469-5722

Attachment 3

INSTRUCTIONS ON HOW TO TAKE A SOIL SAMPLE:

Soil is quite variable over a surprisingly small area. The following steps will help you get a soil sample that truly represents the area you want tested.

1 FORMS

Obtain information and sample boxes from the County Extension office. This form should be filled out as completely as possible. Sample forms may also be download & printed from our web site: **http:\\anlab.umesci.maine.edu**

2 EQUIPMENT

A soil sample can be taken with a probe, spade garden trowel, or soil auger.

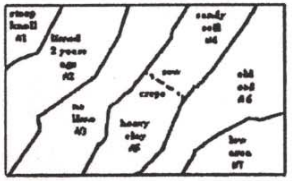
3 DEPTH

Areas to be planted to row crops or seeded down should be sampled to plow depth (or about 8 inches.) Areas in sod, such as lawns or hayfields, should be sampled to a 3-or 4-inch depth. Areas under tree crops should be sampled to a 12-inch depth.

4 AREAS OF SAMPLING

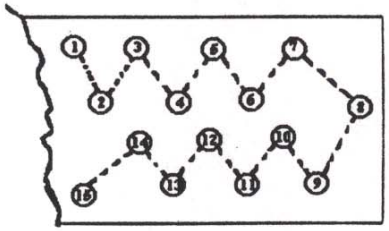
Low spots, trouble spots, and areas with obvious differences in soil type should be treated as separate sampling areas. Also, areas that have been treated differently in the past should be sampled separately. In areas where past treatments and soil types are uniform, limit the sampling area to 8 acres in size. Make a permanent field sampling map for your reference when test results are returned.

EXAMPLE 80 ACRE AREA



5 TAKE A REPRESENTATIVE SAMPLE

Take soil from approximately 15 different spots in the sample area. Place this soil in a clean plastic bucket and mix thoroughly.



6 HOW MUCH IS NEEDED?

Fill a half-pint container from this bucket of well-mixed soil. Maine Soil Testing Service sample boxes are preferred. Your local Cooperative Extension office has soil test boxes.

7 LABEL THE CARTONS

The carton from each sample area should be identified on the side with the identification of the sample area and your last name. **DO NOT** put identification on top, because covers are thrown away. Be sure identifying names agree with your map of sample areas, so when test results are returned there will be no question of where the samples were taken. Be sure the names on the cartons agree with the names on the information form(s)

pH MANAGEMENT LEVELS

The typical pH management levels that are assumed to be optimum for field crops and for gardens and grounds in Maine are as follows:

general agronomic crops - 6.5
broccoli, cauliflower, or peas in potato rotation - 6.0
commercial potatoes & other potato rotation crops - 5.5
commercial beans and sweet corn - 6.0
all other commercial vegetables - 6.5
home gardens and organic crops - 6.5
blueberries, other acid-loving plants below 5.2
(current pH)
all other commercial fruit - 6.0
all turf - 6.0
all forestry - 6.0
shade trees - current pH
shrubs (other than azaleas & rhododendrons) - 6.0
all other ornamentals - 6.5

These are the "default" pH management levels. If for some reason you wish to manage your pH at some other level, please choose one of the alternative pH levels listed on page 1.

AVAILABLE ANALYTICAL SERVICES	FEE* (PER SAMPLE)
STANDARD SOIL TEST: Soil pH; available P, K, Ca, Mg; Organic Matter; Available Zn (field corn and potatoes only); Lead Scan (gardens and grounds only); Exchangeable Na (on re-request); Lime and fertilzier recommendations.	$ 10.00
GREENHOUSE MEDIA TEST (for soilless potting mixes ONLY):pH; Available P, K, Ca, Mg, micronutrients; Soluble salts; Nitrate (Use greenhouse sample form if possible)	$ 10.00
Standard test plus soluble salts.	$ 14.00
Standard test plus nitrates.	$ 16.00
Soil micronutrient analysis and tissue testing are available on request. Contact the nearest cooperative extension office, or call: **581-2917** or **581-2945** Our current price list may also be viewed on our website: **http:\\anlab.umesci.maine.edu.**	

*** PRICES SUBJECT TO CHANGE .**

Attachment 4

RESIDUAL NITROGEN CONTRIBUTIONS FROM LEGUMES

Alfalfa:

First Year after Alfalfa

50% - 75% stand	110 lb./ ac.
25% - 49% stand	80 lb./ ac.
< 25% stand	40 lb./ ac.

Second Year after Alfalfa

50% - 75% stand	50 lb./ ac.

Red Clover and Trefoil:

First Year after Clover or Trefoil

> 50% stand	100 lb./ ac.
25% - 49% stand	70 lb./ ac.
< 25% stand	40 lb./ ac.

RESIDUAL NITROGEN FROM MANURE ORGANIC MATTER

When Applied	Percent of Total Organic N Available	
	Poultry	Dairy or Other
Current Year	60%	*25% - 35%
1 Year Ago	10%	12%
2 Years Ago	5%	5%
3 Years Ago	5%	2%

*Use lower number for solid, higher number for liquid or slurry

AMMONIA-N LOSS TO VOLATILIZATION IF NOT INCORPORATED

Spring or summer applied

Days until Incorporation	Percent of Total Ammonia-N available		
	Poultry	Liquid Dairy	Solid Dairy
0 - 2	80	55	60
2 - 4	60	50	45
4 - 7	40	45	25
> 7	20	40	10

Attachment 5

Calculating Total Pounds of Nitrogen and P_2O_5 Required for Crop Growth:

The following tables should be used to calculate crop removal rates in Maine. **Note the dry matter of the indicated yields. Producer yields need to be adjusted accordingly.** Yield data must accompany any nutrient removal rates beyond the typical yield per acre listed.

Table 3. Typical Crop Nutrient Removal—Forage and Grain Crops

Crop (units)	lbs. Per unit of yield			Typical Yield/Acre	Removal for given yield (lbs/acre)		
	N	P_2O_5	K_2O		N	P_2O_5	K_2O
Corn (bu)	.75	0.4	0.3	120 (bu)	90	50	35
Corn silage(T)[1]	7.7	4.3	9.4	20 (T)	155	86	188
Forage Sorghum(T)[2]	9	3	10	15 (T)	135	45	150
Sudangrass (T)[2]	8	7	7	15 (T)	120	105	105
Alfalfa (T)[3,4]	50	15	50	5 (T)	250	75	250
Red Clover (T)[3,4]	40	15	40	3.5 (T)	140	55	140
Legume silage (T)[3,5]	13.3	5	13.3	14 (T)	186	70	186
Grass mixtures (T)[4,6]	40	15	50	4 (T)	160	60	200
Grass silage (T)[5,6]	13.3	5	16.6	12(T)	160	60	200
Wheat rye (bu)[7]	1.5	1	1.8	60 (bu)	90	60	110
Oats (bu)[7]	1.1	0.9	1.5	80 (bu)	90	70	120
Barley (bu)[7]	1.4	0.6	1.5	75 (bu)	105	45	110
Soybeans (bu)[7]	3.8	1	1.4	40 (bu)	150	40	56
Small grain sil. (T)[2]	17	7	26	8.5 (T)	145	56	221
Pasture[8]					100	30	50

Note: Adapted from Beegle, 1996 and Nutrient Recommendations for Field Crops in Vermont, 1998

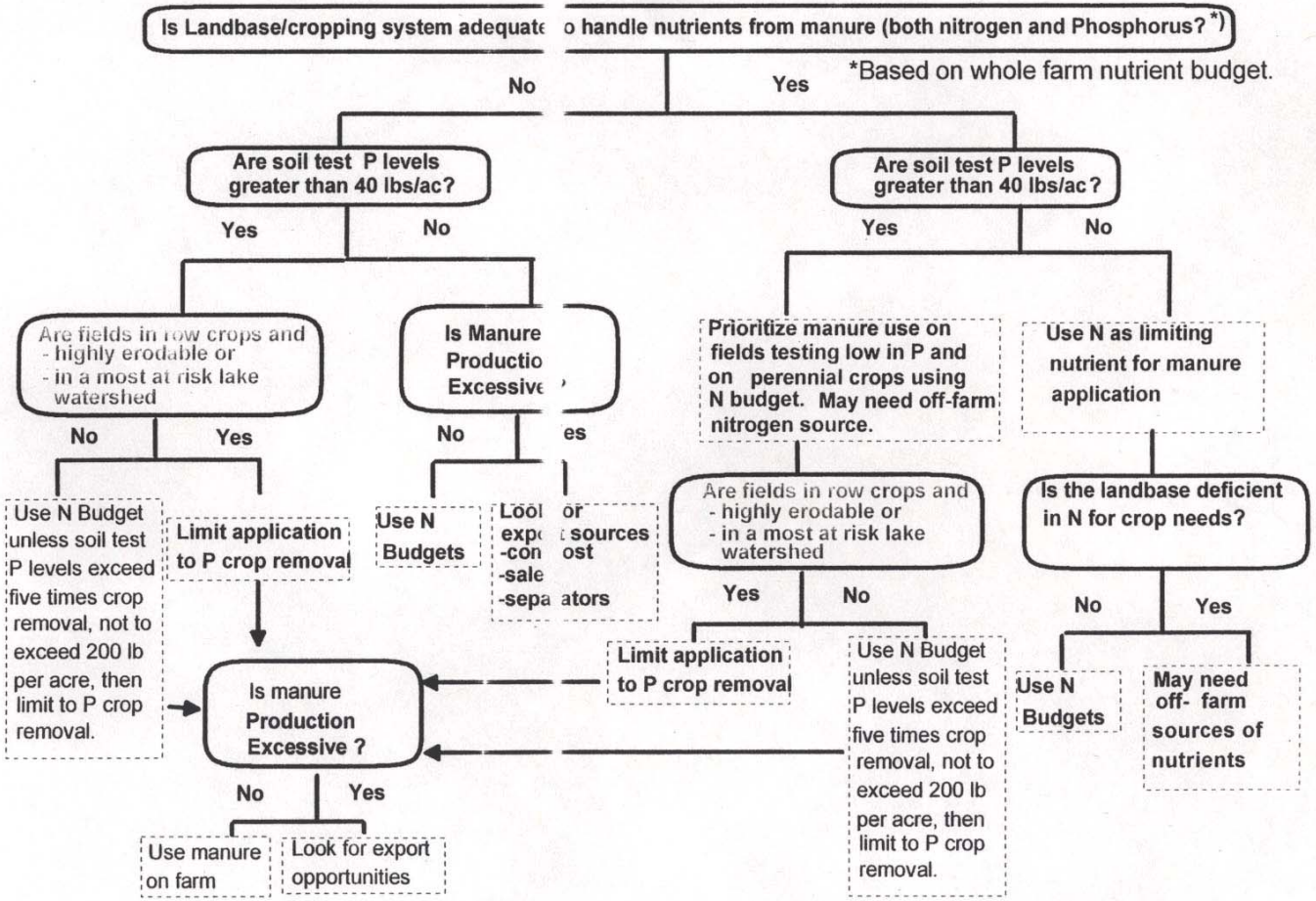
1. 30% dry matter
2. 35% dry matter
3. Legumes can fix nitrogen. However, they are able to use nitrogen as indicated.
4. 90% dry matter or Hay equivalent (HE)
5. 30% dry matter
6. For grass/legume mixtures, use the predominant species in the mixture.
7. Includes straw
8. Yields are highly variable. Figures shown are for well managed pastures in rotation.

Typical Vegetable crop Removal Rates

For Vegetable crops removal rates and yields, consult the most recent version of the New England Vegetable Management Guide (available at your County Extension office)

Attachment 6

N and P Manure Priority Matrix



Attachment 7

Manure Application Guide

1. What is your manure application rate? From the chart below, select the (1) speader capacity, (2) spreader pattern length, and (3) spreader pattern width for typical manure applications.

Rate per Acre = Spreader Capacity X 43560 / (Width of Spread X Length of Spread)

Liquid manure application rate (1000's of gallons per acre)

Spread Width-->	2000 gallon tank :						2500 gallon tank :						3000 gallon tank :						3500 gallon tank :						4000 gallon tank :						4500 gallon tank :					
Length	10'	15'	20'	25'	30'	35'	10'	15'	20'	25'	30'	35'	10'	15'	20'	30'	40'	50'	10'	15'	20'	30'	40'	50'	10'	15'	20'	30'	40'	50'	10'	15'	20'	30'	40'	50'
600'	15	10	7	6	5	4	18	12	9	7	6	5	22	15	11	7	5	4	25	17	13	8	6	5	29	19	15	10	7	6	33	22	16	11	8	7
800'	11	7	5	4	4	3	14	9	7	5	5	4	16	11	8	5	4	3	19	13	10	6	5	4	22	15	11	7	5	4	25	16	12	8	6	5
1000'	9	6	4	3	3	2	11	7	5	4	4	3	13	9	7	4	3	3	15	10	8	5	4	3	17	12	9	6	4	3	20	13	10	7	5	4
1200'	7	5	4	3	2	2	9	6	5	4	3	3	11	7	5	4	3	2	13	8	6	4	3	3	15	10	7	5	4	3	16	11	8	5	4	3
1400'	6	4	3	2	2	2	8	5	4	3	3	2	9	6	5	3	2	2	11	7	5	4	3	2	12	8	6	4	3	2	14	9	7	5	4	3
1600'	5	4	3	2	2	2	7	5	3	3	2	2	8	5	4	3	2	2	10	6	5	3	2	2	11	7	5	4	3	2	12	8	6	4	3	2
1800'	5	3	2	2	2	1	6	4	3	2	2	2	7	5	4	2	2	1	8	6	4	3	2	2	10	6	5	3	2	2	11	7	5	4	3	2
2000'	4	3	2	2	1	1	5	4	3	2	2	2	7	4	3	2	2	1	8	5	4	3	2	2	9	6	4	3	2	2	10	7	5	3	2	2
2500'	3	2	2	1	1	1	4	3	2	2	1	1	5	3	3	2	1	1	6	4	3	2	2	1	7	5	3	2	2	1	8	5	4	3	2	2
3000'	3	2	1	1	1	1	4	2	2	1	1	1	4	3	2	1	1	1	5	3	3	2	1	1	6	4	3	2	1	1	7	4	3	2	2	1

Liquid manure application rate (1000's of gallons per acre)

Spread Width-->	5000 gallon tank :						5500 gallon tank :						6000 gallon tank :					
Length	10'	15'	20'	30'	40'	50'	10'	15'	20'	30'	40'	50'	10'	15'	20'	30'	40'	50'
600'	36	24	18	12	9	7	40	27	20	13	10	8	44	29	22	15	11	9
800'	27	18	14	9	7	5	30	20	15	10	7	6	33	22	16	11	8	7
1000'	22	15	11	7	5	4	24	16	12	8	6	5	26	17	13	9	7	5
1200'	18	12	9	6	5	4	20	13	10	7	5	4	22	15	11	7	5	4
1400'	16	10	8	5	4	3	17	11	9	6	4	3	19	12	9	6	5	4
1600'	14	9	7	5	3	3	15	10	7	5	4	3	16	11	8	5	4	3
1800'	12	8	6	4	3	2	13	9	7	4	3	3	15	10	7	5	4	3
2000'	11	7	5	4	3	2	12	8	6	4	3	2	13	9	7	4	3	3
2500'	9	6	4	3	2	2	10	6	5	3	2	2	10	7	5	3	3	2
3000'	7	5	4	2	2	1	8	5	4	3	2	2	9	6	4	3	2	2

Solid manure application rate (tons per acre)

Spread Width-->	3 ton spreader (90 bushel)						4 ton spreader (120 bushel)						6 ton spreader (175 bushel)					
Length	10'	15'	20'	25'	30'	35'	10'	15'	20'	25'	30'	35'	10'	15'	20'	25'	30'	35'
600'	22	15	11	9	7	6	29	19	15	12	10	8	44	29	22	17	15	12
800'	16	11	8	7	5	5	22	15	11	9	7	6	33	22	16	13	11	9
1000'	13	9	7	5	4	4	17	12	9	7	6	5	26	17	13	10	9	7
1200'	11	7	5	4	4	3	15	10	7	6	5	4	22	15	11	9	7	6
1400'	9	6	5	4	3	3	12	8	6	5	4	4	19	12	9	7	6	5
1600'	8	5	4	3	3	2	11	7	5	4	4	3	16	11	8	7	5	5
1800'	7	5	4	3	2	2	10	6	5	4	3	3	15	10	7	6	5	4
2000'	7	4	3	3	2	2	9	6	4	3	3	2	13	9	7	5	4	4
2500'	5	3	3	2	2	1	7	5	3	3	2	2	10	7	5	4	3	3
3000'	4	3	2	2	1	1	6	4	3	2	2	2	9	6	4	3	3	2

Solid manure application rate (tons per acre)

Spread Width-->	8 ton spreader (230 bushel)						10 ton spreader (290 bushel)						12 ton spreader (350 bushel)						14 ton spreader (410 bushel)						16 ton spreader (470 bushel)						18 ton spreader (530 bushel)					
Length	10'	15'	20'	25'	30'	35'	10'	15'	20'	25'	30'	35'	10'	15'	20'	25'	30'	35'	10'	15'	20'	25'	30'	35'	10'	15'	20'	25'	30'	35'	10'	15'	20'	25'	30'	35'
600'	58	39	29	23	19	17	73	48	36	29	24	21	87	58	44	35	29	25	102	68	51	41	34	29	116	77	58	46	39	33	131	87	65	52	44	37
800'	44	29	22	17	15	12	54	36	27	22	18	16	65	44	33	26	22	19	76	51	38	30	25	22	87	58	44	35	29	25	98	65	49	39	33	28
1000'	35	23	17	14	12	10	44	29	22	17	15	12	52	35	26	21	17	15	61	41	30	24	20	17	70	46	35	28	23	20	78	52	39	31	26	22
1200'	29	19	15	12	10	8	36	24	18	15	12	10	44	29	22	17	15	12	51	34	25	20	17	15	58	39	29	23	19	17	65	44	33	26	22	19
1400'	25	17	12	10	8	7	31	21	16	12	10	9	37	25	19	15	12	11	44	29	22	17	15	12	50	33	25	20	17	14	56	37	28	22	19	16
1600'	22	15	11	9	7	6	27	18	14	11	9	8	33	22	16	13	11	9	38	25	19	15	13	11	44	29	22	17	15	12	49	33	25	20	16	14
1800'	19	13	10	8	6	6	24	16	12	10	8	7	29	19	15	12	10	8	34	23	17	14	11	10	39	26	19	15	13	11	44	29	22	17	15	12
2000'	17	12	9	7	6	5	22	15	11	9	7	6	26	17	13	10	9	7	30	20	15	12	10	9	35	23	17	14	12	10	39	26	20	16	13	11
2500'	14	9	7	6	5	4	17	12	9	7	6	5	21	14	10	8	7	6	24	16	12	10	8	7	28	19	14	11	9	8	31	21	16	13	10	9
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