

- ✓ **When to sample:** Sample fields in the fall or early spring when soil temperatures are below 5 °C. Fall sampling may be ideal as it will provide more time for sampling, sample analysis and interpretation, and fertilizer purchase if necessary. See tip on fall soil sampling below.
- ✓ A sampling probe can be purchased from equipment supply companies or can often be borrowed from fertilizer companies, private labs, crop advisors or extension offices.
- ✓ Take 15 to 20 cores for each pasture. Take these cores in a random pattern across the pasture. This number of cores will ensure a fairly accurate representation of the sampling area.
- ✓ For hilly fields with knolls, slopes, or depressions, take samples from mid-slope positions to get a representative sample of the field average.
- ✓ Avoid sampling obvious areas of unusual variability such as: saline areas, eroded knolls, old manure piles, burn piles, haystacks, corrals, fence rows, old farmsteads, or any other unusual areas.
- ✓ Soils within 15 m (50 ft) of field borders or shelterbelts and within 50 m (150 ft) of built-up roads should be avoided or sampled separately.
- ✓ Always sample prior to manure or fertilizer applications.
- ✓ Segment each core into lengths that represent soil depths of 0 to 15 cm, 15 to 30 cm, and 30 to 60 cm.
- ✓ Separate the segmented cores by depth into clean, labeled plastic pails. Thoroughly mix the content of each pail, crushing any lumps in the process. Avoid using metal pails to collect samples because they can alter the results of micronutrient tests.
- ✓ Take a single sub-sample (about 1 lb by weight) from each sampling depth pail and submit for analysis.
- ✓ The cost of soil sample analysis varies from lab to lab and depends greatly on the type of analysis requested. For a basic chemical analysis, the cost typically ranges from \$40-70 per sample.

Handling soil samples:

- Moist samples should be delivered to the lab on the day they were collected. If this isn't possible, they can be refrigerated for up to two days or frozen. Moist samples should spend no more than two days in transit.
- If samples cannot be sent immediately to the lab, they can be dried. Spread each sample out on a clean surface. Allow to completely air dry at a temperature no warmer than 30°C.

Tip for Fall Soil Sampling: *If soil sampling prior to forage stand establishment, wait until soil temperatures are below 5°C. When temperatures are cool, soil microbial processes that affect plant available nutrients slow down, so changes to nutrient levels prior to spring seeding will be minimal. If fall soil sampling in existing forage stands, sampling can occur as early as the start of September.*

Tip: *Prior to soil sampling, contact your preferred soil testing lab (options in your area can be found via internet search or by contacting your county or local applied research or forage association) for more information on handling samples and what information to include with each sample, such as date of collection, field ID and sample depth.*

In many cases, the lab will provide collection containers and/or shipping bags along with forms requesting information on cropping and management history of the sampled field. Include information on any unusual problems in the field.

Example of a Soil Test Result

1 Address: ABC Farms Box 123 My Town, AB T0G 0N0	2 Grower Name: Joe Smith Client's Sample ID: 1a Field ID: Brown Place Legal Location: NW 6-39-29-W4	3 Tracking Number: 202010-01999 Date Received: October 19, 2020 Report Date: October 26, 2020 Disposal Date: November 30, 2020
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4 Nutrient Analysis (PPM)													5 Quality			
Depth	N	P	K	SO ₄	Cl	Cu	B	Ca	Mg	Fe	Zn	Mn	pH	EC	OM	Texture
0 - 6"	4	11	175	19	12	0.6	0.7	800	300	3	1.5	2.5	6.7	0.4	5.5	Loam
6 - 12"	1			10												
12 - 24"	1			8												
Total																
6 Range	D	D	A	A	M	M	A	A	A	M	A	A	Neutral	Good	Normal	

E: Excess A: Adequate M: Marginal D: Deficient

7 lb/ac											8 Cation Exchange				
Available lb/ac	14	22	350	90							TCEC:	44 meg/100g			
											BS:	100%			
											Ca	Mg	K	Na	
											55%	35%	9%	1%	

9 Recommendations (lb/ac)														
Crop	Conditions	Yield	N	P ₂ O ₅	K ₂ O	S	Cl	Cu	B	Ca	Mg	Fe	Zn	Mn
Wheat	Excellent	68	125	30	0	0	0	0	0	0	0	0	0	0
	Average	57	100	25	0	0	0	0	0	0	0	0	0	0

Adapted from Alberta Agriculture and Forestry

- 1. Client ID**
- 2. Sample ID**
- 3. Sampling and Processing Dates**
- 4. Nutrient Analysis** – a measurement of the nutrients removed from the soil sample using an extracting solution. This forms the basis for the fertilizer recommendations at the bottom of the page. Levels are reported in parts per million (ppm or mg/kg).
- 5. Soil Quality Factors** – includes salinity (EC), organic matter (OM), pH and texture. May have a rating system to flag potential problems.
- 6. Nutrient Level Rating** – this is a subjective rating based on the probability that a particular nutrient will limit plant growth and production. These ratings are often depicted in a bar graph format.
- 7. Soil Nutrient Levels** in lbs/ac.
- 8. Cation Exchange Capacity** – often available at an additional cost. Cation exchange capacity is an indirect measure of a soil's ability to retain essential nutrients and resist acidification.
- 9. Fertilizer Recommendations** – based on yield response curves or yield expectations for a crop based on soil moisture and growing season precipitation. Fertilizer application rates should be adjusted based on expected precipitation. An agrologist can help fine tune these recommendations.

Tip: Labs use different extraction processes, so the soil nutrient analysis from one lab cannot be directly compared to another unless they are using the same procedures. It is recommended to use the same lab year after year, or labs with the same extraction processes, to be able to compare soil nutrient level changes over time.