

Soil Sampling and pH Management for Forages

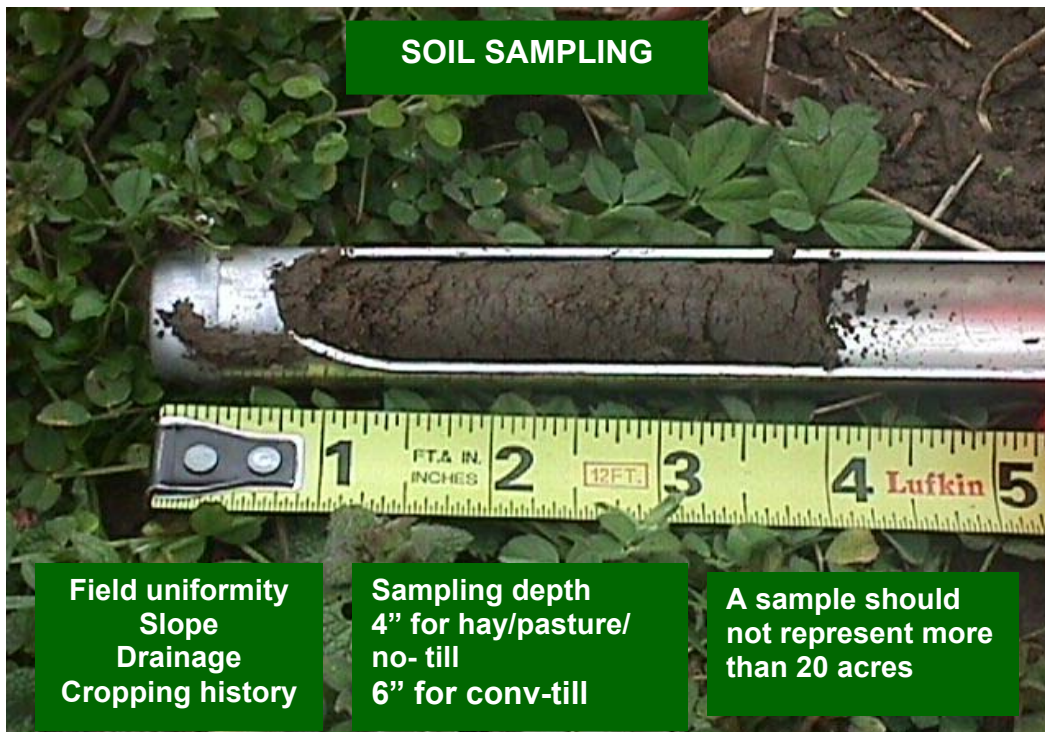
Fertility management influences forage yield, distribution, composition, and quality.

- ▶ Most forage grasses need a pH range from 5.8 to 6.5
- ▶ Grass-legume mixtures need a pH of 6.2 to 6.5
- ▶ Alfalfa needs a pH of 6.5 to 7.0

Apply lime 6 – 12 months before anticipated need to allow pH change.
 If over 2 tons/acre needed, split over several years for surface application.

Sequence

1. Soil Sample
2. Correct pH on best fields first
3. Correct nutrients on best fields first
4. After initial corrections, hay fields need closer monitoring than pastures



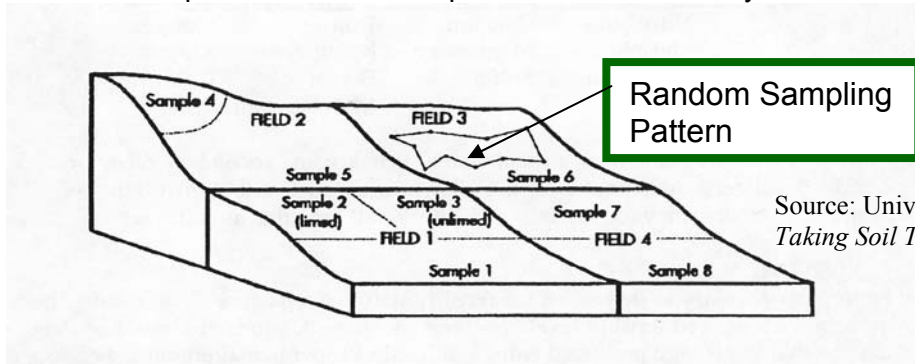
Soil Sampling

Accuracy is essential!!!

1. Sample on the basis of
 - Soil type
 - Cropping history or past management practices
 - Erosion and problem areas
 - Avoid concentrated areas of dung and urine (shaded areas)
2. Label each area for proper identification
3. Sample areas of 10 to 20 acres unless uniformity allows a larger area

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4. Collect soil cores randomly
5. Collect at least 10 soil cores for small areas; 30 cores for larger areas
6. For pastures and hay fields, sample to a depth of 3-4 inches
7. Mix samples for the unit sampled and allow to air dry



Break areas up according to use, management, slope, and manure distribution.

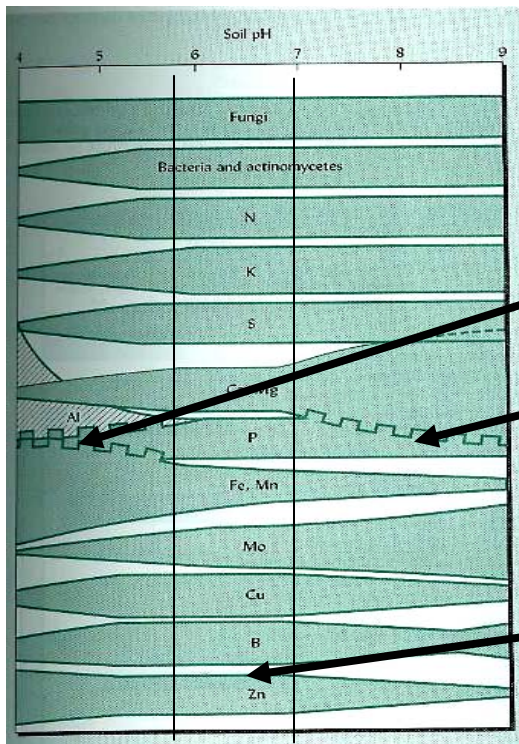
Frequency of Sampling

Pasture – once the desired fertility level is reached, every 2 to 3 years

Hay – every year due to removal of nutrients in the hay crop

pH Affects Many Soil Factors

- Nutrient availability – low pH reduces phosphorus availability
- Soil organisms and earthworms
- Cation exchange capacity
- Calcium level (and magnesium if dolomitic limestone is used) and
- Efficiency and carryover potential of some herbicides



As pH goes down (becomes more acid) availability of many nutrients is lessened while many micronutrients become too available leading to nutrient deficiencies or toxicities for plants.

At too low pH P is tied up with aluminum and iron and at too high pH P is tied up with calcium and magnesium

DESIRED RANGE = pH 5.8-7.0

Source: BRADY, NYLE C.; WEIL, RAY R., *Nature and Properties of Soils*. 13th Edition, 2002. With permission of Pearson Education, Inc., Upper Saddle River, New Jersey