



NECi

NECi: The Nitrate Elimination Company, Inc.

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NECi Cat. LF-NTK-100 Series

# Forage Nitrate Test Kit Instructions

## Livestock Feed – forage, standing hay, silage

### Tips & Notes

**Store** in a cool place (below 72°F/22°C), away from direct sunlight. Refrigerate if possible. The kit can withstand hot summer temperatures for 5 days. *Do not open the sealed packets or mix tube contents until ready to use.*

**Plant sampling** can be a complex issue by itself. For best results, follow the directions of a Certified Crop Advisor for advice on plant sampling.

**Don't forget to record where you got your samples. Label your samples & tubes!**

#### **Kit Contents (per 4 samples):**

- 4 clear tubes with white screw caps containing 10 ml water
- 4 plastic pans
- 4 clear *twist off* squeeze bulbs (buffer)
- 1 clear *snip off* squeeze bulb containing nitrate standard
- 5 snap cap tubes in sealed foil pouch (this is the enzyme)
- 8 plastic droppers
- 5 foil-sealed square tubes of color reagent powder, plus caps
- 1 cardboard test tube holder

#### **You'll need:**

- Marker for labeling tubes and samples
- Scissors to *snip off* end of 1 squeeze bulb with standard
- Garlic press or pliers
- Pen for recording data on data sheet!

**Introduction:** This kit contains everything you need to test forage samples. We also provide *snip off* squeeze bulbs with nitrate standard at 1000 ppm nitrate-N ( or 4400 ppm nitrate) to help evaluate your results, and so you know the kit is working. This format can be used to run multiples of 4 samples and 1 standard at a time. Collect your plant samples, and then run the tests and at least one standard all at once. Repeat each step for each set of samples you test.

**What to Expect:** The nitrate value you get will tell you the nitrate content of your plant sample. We can't guarantee the accuracy you would expect from a testing lab. But you *will* get a number you can use for making on-site decisions about plant nitrate content.

### **Step 1: Get your samples**

Use a garlic press or a clean pair of pliers to squeeze several drops of plant juice into one of the pans provided. Repeat for each plant sample. Use a clean pan for each sample. Clean and dry the press or pliers between samples.



**Step 2: Sample prep** Add **one drop** (50µl) of plant juice to one of the clear tubes of distilled water (white cap). Recap the tube and shake well. Be sure to **label the tube** and record the sample name on the data sheet. Repeat for each plant sample. Use a clean dropper for each.



### **Step 3: Prepare your Snap cap tubes.**

Remove the 5 snap cap tubes from the foil pouch. Place them in the cardboard test tube holder. Tap the tubes to settle contents. Keep tubes **upright** when open so as not to lose contents.

Set the tube with the **blue dot** apart from the others. *Snip off* the end of the standard squeeze bulb (above, left) and empty entire contents into the tube with the **blue dot**: this is the **nitrate standard**.

**Empty** entire contents of one *twist off* squeeze bulb (above, right) into each of the other 4 snap cap tubes. These will be your plant sample results. Label the tubes now! Cap all the tubes and shake gently.





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### Notes

Be sure you have labeled the snap cap tubes in Step 3 to match the plant extract drop you are adding here in Step 4. **Add only one drop!**

You can let this step go as long as you want to, but **wait at least 10 minutes**, with shaking, before going on to Step 5.

The Color is stable for a few days. You can keep the tubes to look at later.

This kit has been designed with nonhazardous reagents. It is safe to dispose of the liquids down the drain or on the ground. Spills can be wiped up with water and will not harm the skin. As with any household product, we do recommend you keep our Nitrate Test Kits out of the reach of children.

#### ppm Nitrate

**0-3000 ppm** Not toxic to any class of livestock

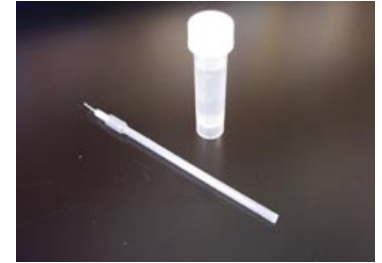
**3-6000 ppm** Safe for most classes; limit to 50% of diet for stressed or pregnant animals

**6-9000 ppm** Potentially toxic; limit to 25% of diet; do not feed to pregnant animals

**>9000 ppm** Potentially deadly; do not feed without grinding and mixing to dilute nitrates

### **Step 4: Add samples from Step 2 to the snap cap tubes in the holder.**

Use a clean dropper to take some liquid from near the surface of the clear tube. Add **one drop** (50 µl) of this liquid to one of the **snap cap tubes**. Make sure not to touch the sides or surface of the liquid with the dropper. **Repeat** for all **4** samples, using a different dropper for each sample. Recap the snap cap tubes and shake gently. Let all the **snap cap tubes** set for **at least 10 minutes**, shaking gently every few minutes.



**Step 5: Color development** After at least **10 minutes**, pour the contents of the snap cap tube with the **blue dot** into one of the **square foil covered tubes** with the **blue dot** (the nitrate standard). Pour the contents of each of the other **4** tubes into the appropriately labeled square tube. Try to get most of the liquid transferred. Firmly seal with a square cap and shake rapidly. Let this tube develop for about 5 minutes, shaking it several times to try to dissolve most of the powder.

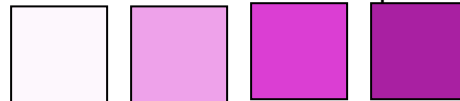


### **Evaluating your results:**

The **nitrate standard** should have a clear pink color. Your sample results may be slightly cloudy, but you will see the pink color if enough nitrate is present. The nitrate standard is set at 1000 parts per million **nitrate-N** (1000 ppm nitrate-N), or 4400 parts per million **nitrate** (4400 ppm nitrate).

Compare your results to the standard by holding your samples and the standard against a white background. Determine whether your samples are less than, nearly the same, or greater than the nitrate standard color.

Here is a color chart for comparison.



**0 ppm    1800 ppm    4500 ppm    9000 ppm    Nitrate content as ppm nitrate**

**0 ppm    400 ppm    1000 ppm    2000 ppm    Nitrate content as ppm nitrate-N**

**Safe    Safe for most    Some danger    Do not use    Feed safety for livestock**



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**DATA SHEET FOR AG LIVESTOCK FEED NTK**

When you are finished with the test, the nitrate standard should have clear pink color. Your sample results may be slightly cloudy, but you will still be able to see pink color if enough nitrate is present.

Compare your results to the standard by holding your samples and standard against a white background for best results. You can use the back of these instructions. Determine whether your samples are less than, nearly the same, or greater than the nitrate standard color.

Use the Color Chart below to help with your comparisons.  
 Note that parts per million (ppm) values are listed for both nitrate and nitrate-N.



Scale for Livestock Feed Test Kits:

0 ppm	1800 ppm	4500 ppm	9000 ppm	Nitrate content as ppm <u>nitrate</u>
0	400	1000	2000	Nitrate content as ppm <u>nitrate-N</u>

<u>Sample Number</u>	<u>Sample Description</u>	<u>ppm Nitrate</u>
	Example: northwest corner, collected 8/25/03	Close to, but less than 1000ppm
1		
2		
3		
4		

**Problems or Questions??? Call NECi – 1-888-NITRATE**

**Thank You for using NECi Ag-NTK!**

