

Sodium Nitrate – As an Input for Use in Organic Crop Production

Natural Sodium Nitrate, a.k.a. Chilean Nitrate- OMRI listed (16-0-0) is available in a dry, flowable prill form that is also 100% water-soluble. It is marketed by the Chilean producer, SQM, under the brand name: **Allganic™ Nitrogen**

Sodium Nitrate is an organic nitrate nitrogen nutrient source from natural rock deposits found in the Atacama Desert in Chile. Your best value as a grower is to maximize the use of a small amount. Applying it when temperatures are low and soils do not have the ability to produce available nitrogen is where you will get the greatest plant response (growth).

The amounts of sodium nitrate that is allowed for crop production is much greater than you will ever need or can financially afford. For vegetable crops, feed every 10-14 days, liquid or dry. These nutrient applications are much more efficient when split into multiple applications at low rates. For field crops, using sodium nitrate in a 2 x 2 application at planting, liquid or dry, and following up with foliar and /or side dressing applications will help maximize your production.

Prospective Application Rates for Sodium Nitrate

Current NOP Restriction: Operators using Sodium Nitrate shall use it in a manner that maintains or improves the natural resources of the operation, including soil and water quality, and comply with crop nutrient and soil fertility requirements. Although the 20% restriction no longer applies, it is required to contact your certifier if you wish to apply more than 20% of your crop's Nitrogen need with Sodium Nitrate. Always check with your certifier for application rate verification.

All lbs/per acre applications

Growing Crops	Amount of N required	20% of N requirements	Projected Amount of 16-0-0
<u>Field Crops</u>			
Wheat (Spring & Winter)	80-100	16-20	100-130#
Oats, Barley, Spelt	60-80	12-16	75-100#
Corn	120-180	24-36	150-225#
Pasture-grass	100-120	20-24	120-150#
Cotton	50-75	10-15	60-100#
Peanuts	80-120	16-20	100-130#
<u>Fruit & Vegetables</u>			
Apple	100-150	20-30	125-188#
Blueberry	80-100	16-20	100-125#
Citrus	100-200	20-40	125-250#
Almond	200-300	40-60	250-375#
Peach	100-150	20-30	125-188#
Potatoes	180-200	36-40	225-250#
Cole Crops	150-175	24-35	150-218#
Green Beans	60-80	12-16	75-100#
Cucurbits	100-150	20-30	125-188#
Onions, Leeks, Garlic	100-150	20-30	125-188#
Tomatoes/Melons/Peppers	120-180	24-36	150-225#
Carrots	100-150	20-30	125-188#
Baby Greens/Spinach	80-120	16-24	100-150#
Sweet Corn	120-180	24-36	150-225#
Lettuce	100-150	20-30	125-188#
Celery	180-200	36-40	225-250#

Observations and field trials on the use of Sodium Nitrate on growing crops

Very useful as a nitrate nitrogen source for corn early in the growing season- 4-7th leaf

: University research shows improved shelled corn and silage yields and quality

Improves palatability of grass pastures- 1 broadcast application or 3 foliar sprays/season

Increase early harvest yields in early season Cole crops-

: Broccoli, Cauliflower and Cabbage do really well- more than double production in early harvest

Very good source of nitrate nitrogen for winter wheat and small grains in early spring

: Research and farmers report improved yields and higher grain protein

Improves barley and oat yields where soil sodium levels are low- these crops require high sodium

For high nitrogen demanding crops (garden vegetables), a weekly/bi-weekly program will pay big dividends

Increase the electric conductivity of the plants in all applications.

: Higher plant energy

Pasture Application Guidelines

Dry:

Apply dry sodium nitrate at 120-150#/ acre on pastures with good equipment to evenly broadcast the prill. Broadcast in evening and by morning there should be no issue with allowing animals back out to pasture. The prills dissolve very quickly if there is any moisture in the soil or air.

If you do a really poor job of broadcasting (not well distributed) you better wait 8-10 days. The cattle will be attracted to the sodium nitrate because of the sodium ion. That could potentially be an issue of direct animal consumption if you overload on the sodium nitrate in concentrated areas.

Liquid:

Liquid sprays are safest on pastures, but to put on over 20# sodium nitrate/ acre in liquid (20 gal/acre is typical spray volume), you will need a carbon source mixed with it (liquid fish or molasses) to avoid burning. I always see that we do not get burning at a 1# per 2 gal water rate. Ultimately, it depends on spray volume of equipment.

The best way to liquid apply the sodium nitrate without having a carbon source mixed in is to replace the foliar tips with ground streamers.

Here are three different ways to apply sodium nitrate on pasture:

- 1- Foliar spray along with a liquid carbon base– 10-20 lbs sodium nitrate per 10-20 gal per acre
 - a. Most effective, but requires multiple applications/season (2-3 week intervals)
 - b. Results in greenup and palatability in three days. Research results show production will be enhanced for up to 10 weeks.
- 2- Dry broadcast – up to 150#
 - a. Very effective results- Greenup will begin in 10 days and continue to release nitrogen over 30 days
 - b. Excellent long term affect
 - c. No need for multiple applications
- 3- Streaming – will reduce or eliminate burning of the grass.
 - a. Very effective with high amounts of sodium nitrate (25#/acre) liquefied –Results in greenup and palatability in three days
 - b. Excellent long term affect
 - c. 3 applications/season (2-3 week intervals)

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