YaraLiva® Calcium Nitrate Performance on Potatoes in Michigan

Objective

Six third-party replicated small plot research trials were carried out over three growing seasons (2021, 2022, 2023) to test the effect of different sources of calcium on chipping potato yield, quality and storability.

Treatments

Product	Rate	Timing
YaraLiva CN-9 9-0-0 11Ca	40 gallons/acre total Split applied	1. Tuber initiation (TI) 2. Second tuber initiation
YaraLiva Tropicote 15.5-0-0 19Ca	500 lb/acre total Split applied, incorporated	1. Hilling 2. Tuber initiation 3. Skin set
Calcium Chloride 9-0-0 7Ca 1.5Mg	40 gallons/acre total Split applied	1. Tuber initiation (TI) 2. Second tuber initiation
Pelletized Gypsum	400 lb/acre	Pre-plant
No calcium added	n/a	Included in 2022 and 2023 trials only

BASIC INFORMATION	
TARGET CROP	Potato
VARIETY	Manistee, Norkotah
LOCATION	Marshall, Michigan
PRODUCT	YaraLiva Tropicote, YaraLiva CN-9
TRIAL DATE	2021, 2022, 2023
RESEARCHER	Mid Michigan Agronomy

KEY FINDINGS

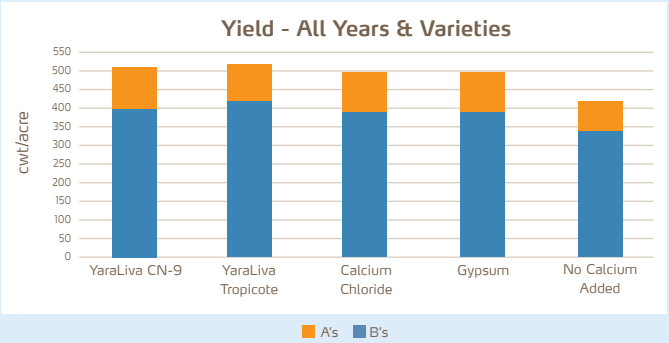
- Yield increased in both YaraLiva treatments compared to all other treatments
- Highest yield was achieved in the YaraLiva Tropicote treatment which out-yielded gypsum & calcium chloride by 20.5 cwt/ac (4%)
- YaraLiva Tropicote also out-yielded the no calcium added treatment by 100.6 cwt/ac (24%)

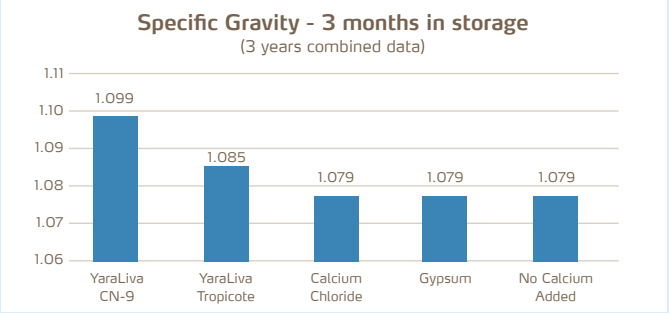
In both YaraLiva treatments, yield improvements came from an increase in tuber number and in total yield.

Post Harvest/Storage

- Manistee samples for all three trial years were stored for 3 months and evaluated for quality monthly

Both YaraLiva treatments had the highest specific gravity, compared to calcium chloride and gypsum.





Yield & Grade

By providing fully soluble, plant-available calcium and predictable nitrate nitrogen to the crop, yield increased in both the YaraLiva CN-9 and YaraLiva Tropicote treatments, compared to calcium chloride, gypsum, and no additional calcium. The highest yield was achieved in the YaraLiva Tropicote treatment, which out-yielded gypsum and calcium chloride by 20.5 cwt/ac (4%) and out-yielded the treatment where no calcium was applied by 100.6 cwt/ac (24%). The next highest yield was achieved in the YaraLiva CN-9 treatment which out-yielded gypsum and calcium chloride by 14.5 cwt/ac (3%) and out-yielded the treatment where no calcium was applied by 94.6 cwt/ac (23%). The proportion of A's and B's was not significantly changed by treatment.

Table 1: Total Yield including all years and varieties

Treatment	Tuber Count/Acre	Total Yield (cwt/ac)	Yield A's (cwt/ac)	% A's	Yield B's (cwt/ac)	% B's
YaraLiva CN-9	107,106	507.4	401.8	79%	105.6	21%
YaraLiva Tropicote	102,512	513.4	418.2	81%	95.3	19%
Calcium chloride	98,914	492.9	389.0	79%	103.9	21%
Gypsum	101,253	492.9	390.8	79%	102.0	21%
No calcium added	88,863	412.8	336.7	82%	76.1	18%

Table 2: Yield by Variety - Manistee

Treatment	Total Yield (cwt/ac)	Yield A's (cwt/ac)	Yield B's (cwt/ac)
YaraLiva CN-9	508.2	412.2	96.0
YaraLiva Tropicote	510.1	410.3	99.8
Calcium chloride	467.4	363.6	103.9
Gypsum	483.1	385.9	97.1
No calcium added	416.4	337.4	79.0

Table 3: Yield by Variety - Norkotah

Treatment	Total Yield (cwt/ac)	Yield A's (cwt/ac)	Yield B's (cwt/ac)
YaraLiva CN-9	507.4	401.8	105.6
YaraLiva Tropicote	513.4	418.2	95.3
Calcium chloride	492.9	389.0	103.9
Gypsum	492.9	390.8	102.0
No calcium added	412.8	336.7	76.1

YaraLiva®

The Right Source of Soluble Calcium at the Right Time

YaraLiva calcium nitrate is a combination of fully plant available calcium perfectly paired with nitrate nitrogen to facilitate cation uptake. YaraLiva Tropicote (15.5-0-0 19Ca) is a dry, granular calcium nitrate formulation that can be ground or aerial applied. YaraLiva CN-9 (9-0-0 11Ca) is a liquid calcium nitrate formulation that allows for flexible application. While many soils contain adequate amounts of total calcium, much of that calcium is tied up in insoluble forms and unavailable for plant utilization. The calcium in YaraLiva calcium nitrate products is 100% water soluble and fully available for immediate plant uptake. In-season at tuber initiation, calcium is taken up through stolon and tuber roots and incorporated into developing tubers. Once in the tubers, calcium is important to build cell wall strength, which is important for tuber quality and storability.