44 YEARS LATER – UNCOVERING INSIGHTS INTO METAM SODIUM MOVEMENT IN SOIL

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How Moist, Friable and Mixed Soil Can Improve Your Application Pattern

Many potato growers are sub-optimizing their applications of metam sodium because of outdated assumptions regarding both how the product travels and ways it controls pests in the soil.

Researchers at NovaSource have revealed several interesting findings regarding the limited mobility of metam sodium when applied in soil, including:

- its propensity to move only within inches of where it is applied
- differences in soil preparation playing an important role in impacting product movement
- lack of product movement in the soil from different application methods
- the importance of soil moisture in product movement and sealing the product
- the potential role of liquid lime sulfur in combination with metam sodium to facilitate movement

Approximately 15 percent of the one million potato-producing acres in the United States continue to be treated annually with metam sodium, a soil fumigant that was first registered in the U.S. in 1975.

In order to perform at peak effectiveness, metam sodium needs to come in contact with the pest to control it. Effective depths are different for nematodes, diseases and weeds.

Soil fumigants have unique properties that enable them to work at various depths. For decades, a common assumption has been that fumigants move through the soil easily and equally.

Yet our research reveals that movement can be limited by soil type, soil preparation and moisture content.

Metam sodium does not move in the soil at the degree of two other widely used fumigants – methyl bromide or 1,3-dichloropropene. This conclusion

is based on more than 10,000 readings using a photo ion detector (MiniRAE 3000) in several potato-growing states.

Further, MiniRAE readings indicate that metam sodium movement is highly dependent upon product application method.

Mobility is particularly weak in the 0-4 inch range when applied by shank. When chemigated, metam sodium has difficulty reaching depths greater than 4 inches.

Regardless of application method, lateral movement is found to be limited, even in sand, and downward movement is also limited further by hard soil.

NovaSource generated highly favorable results by experimenting with multiple ways of soil preparation.

Our research confirmed the importance of moisture in the soil to facilitate movement and sealing of the product. Experiments into developing different shank applications also showed favorable results.

In 2015, NovaSource began working with University of California Davis scientists to test liquid lime sulfur – a proven soil amendment – as a possible enhancement to fumigation.

Preliminary test results of blending liquid lime sulfur with metam sodium are encouraging.