

# Controlled Release Nitrogen Shows Promise on Onions

Product is reportedly showing consistently higher returns on investment with onion growers in the Pacific Northwest.

**P**roper nutrition and careful soil management are key factors to success in growing onions in the Pacific Northwest. Inefficient applications of nitrogen (N) can cause a delay in bulb formation if N concentrations are too high during the early phase of plant development, especially during bulb initiation. Low N concentrations within onion's effective root zone can have serious consequence relative to disease, bulb maturity, and long-term storage.

One of the more difficult challenges for growers and crop advisors is to effectively manage both irrigation water and available N fertilizers into the relatively inefficient root zone of growing onions. Poor N efficiency in irrigation water can directly impact the bottom line of onion producers by decreasing yield and long-term storage. It also can increase environmental problems relative to N leaching and potential nitrate increases in ground water.

## CRN Fertilizers

New advances in controlled release nutrient technologies have been adapted that focus on specific needs of onion production. Controlled release nitrogen (CRN) fertilizers may very well provide new tools to help solve various nutrient and environmental concerns, and add a nice margin of profit to an onion grower's bottom line. This is especially true when combined with in-season fluid fertilizers.

J.R. Simplot Company has been supporting CRN studies on onions at Land Grant Universities in Idaho, Utah, Oregon, Washington, Colorado, Nevada, and California with the use of its registered CRN product called Polyon, a polymer-coated urea developed for use in agricultural production areas.

One such study was that conducted by Dr. Daniel Drost of Utah State University, where he used CRN to compare different application rates, timing, and various combinations of urea with Polyon. Based on three growing seasons, Dr. Drost's reports

that the CRN consistently produced high overall yields, as well as a high number of colossal grade bulbs. According to Drost, return on investment to the grower consistently improved, even when allowing for the price differential between CRN and traditional fertilizers. This also took into account the grower's standard practice, as well as when his total N fertilizer was reduced. Dr. Drost attributes this to better N-use efficiency. Traditional soluble N fertilizers, he notes, are very mobile. Even with split applications of N as urea ammonium nitrate (UAN), much of



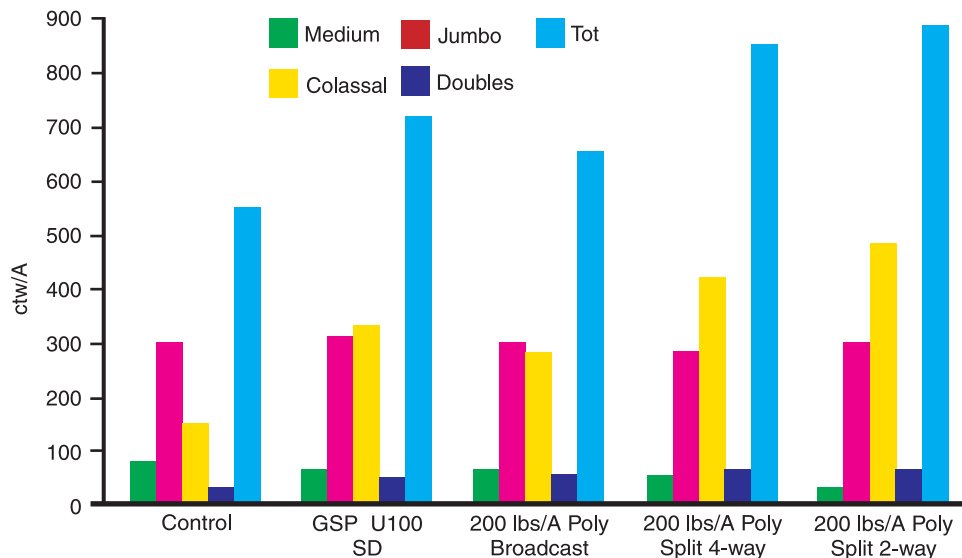


Figure 1. Effect of CRN combined with commercial N on onion production, Parma, Idaho. GSP + Grower Standard Practice; U100 = Urea at 100 lbs/A; and SD = Sidedress

the N required for onion development leaches away from the root zone. His studies have shown that with CRN there is extended N availability within onion beds.

### Fall Bedding

Fall bedding is a common practice in the Treasure Valley onion production areas of Idaho and Oregon. Dr. Brad Brown, University of Idaho, and Lynn Jensen, Oregon State University, have evaluated the applicability of various combinations of CRN and soluble N. Dr. Brown's efforts emphasized that the most productive, efficient source of N, as well as the greatest opportunity for producing high-quality onions, was a combination of fall-applied CRN and sidedressed N. The remaining 50 percent of required N would be applied as a single sidedress of soluble N applied the first part of June as UAN. These efforts showed improved yield, quality, and economic potential when using CRN in the Treasure Valley. Dr. Brown's work can be easily applied to most furrow-irrigated onions. Jensen conducted similar work. Figure 1 is a composite of a three-year study ('00 to '02) by Dr. Brown. It depicts the

strength of the combination of CRN and commercial N on onion production in Parma, Idaho.

### Other Combinations

Dr. Dwayne Westfall of Colorado State University has shown growers how incorporating a portion of their total N as CRN would have the potential of increasing both yield and quality in the onion production areas of Ft. Morgan, Colorado. Dr. Westfall created blends that combined the immediately available and lower cost soluble N with high, efficient CRN. The result was both higher yields and quality compared to growers using soluble N forms alone.

Kris Yano has been using a percentage of CRN with in-season N with good results on his farm located in Treasure Valley. The CRN coatings allow N to remain available until about the first of June. He can then make a single sidedress application of UAN for the remaining N. This technique had proven effective under a variety of growing conditions.

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