

Onion Response to Fall Banded Fertilizer Phosphorus

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Onions require phosphorus (P) for growth and timely maturity. Phosphorus fertilizers are available with new formulations or coatings designed to improve fertilizer P availability and effectiveness. These new fertilizer technologies have not been fully evaluated for sweet Spanish yellow onions grown in the Treasure Valley. Fields are commonly bedded in the fall on 22" centers and left over winter until they are sheered off and onions planted on them in double rows (separated by 4") centered on the bed. Fertilizer P is frequently fall broadcast prior to bedding or banded into soil in bed centers.

Methods

Three 11-52-0 P (MAP) fertilizers differing in their coating (none, Avail or TRP) were evaluated at the 52.5 lb P/A rate as fall banded treatments and compared to an untreated control at the Parma R & E Center. The banding was done November 11, 2008 in pre-marked bed centers at a depth of 2.3" such that the applied P was placed 2" below the expected seeding depth and between the dual rows (separated by 4") to be centered on the beds in the spring. The soil was bedded after the banding. Initial soil fertility criteria included pH 7.8, 6 ppm P, 150 ppm K, 1.1% OM, and 1.5 ppm Zn. Onions (variety "Granero") were planted March 26 with Lorsban insecticide (6 lb/A). Roundup was applied (32 oz/A) April 14 just prior to onion emergence. Prowl was applied (30 oz/A) June 1 and June 30, a tank mix of Buctril (12 oz/A) and Goal (2 oz/A) applied June 3, and Poast (24 oz/A) with Hasten carrier (24 oz/a) on June 18. Onions received one sidedress of 60 lb N/A as urea on July 6. Insecticides for thrip control included Success (6 oz/A) with Aza Direct (1 pint/A) on June 18, Lannate LV(3.0 pints/A) with R11 spreader and Tri-fol sticker on June 30 and July 17, Movento (5 oz/A) on July 7, and Radiant (10 oz/A) on July 29. Onions were lifted September 16 and harvested September 29.

Results

Fall banded MAP hastened maturity (increased % tops down) somewhat as compared to the control. Maturity of onions were advanced more if MAP were treated with Avail than with TPA, the untreated MAP was intermediate. Fall banded P decreased the yield of the smallest sized onions or mediums, but increased the yield of larger onions as jumbo (3.25-4"), colossal (4-5"), super colossal (>5") as well as the total yield. Medium and Jumbo onion yields did not differ among P sources. Colossal and Super colossal yields were lower for TPA MAP than the untreated or Avail MAP.

Despite low available soil P conditions in this study, coatings of Map provided no yield advantage over the untreated MAP. It is not clear why TPA MAP was not as effective as the other MAP fertilizers evaluated.

Table 1. Sweet Spanish onion response to fall banded phosphorus sources. Parma, 2009.

Fertilizer P	Tops down	Medium	Jumbo	Colossal	Super Colossal	Total
	%	Cwt/A				
Control	1.6	192	448	62	8	710
11-52-0	7.3	148	484	201	38	872
Avail 11-52-0	11.1	143	475	226	36	880
TPA 11-52-0	5.3	154	488	162	24	827
LSD _{.10}	4.1	19	29	31	12	34
Mean	6.3	159	474	163	27	822
CV	65	11.5	6.0	18.7	43.0	4.0