

2004 Demonstration
on
Transplant Onion using Agri-Blend,
a
HYDROGEL/Zeolite Blend

Location: Hanagan Farms near Swink in Otero County

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Introduction:

One of the problems with transplanted onions planted on beds using drip irrigation is getting water to the roots of the young sprouts and maintaining moisture around the roots as they begin to grow. Because, in most installations, the drip-lines are buried 8 or more inches below the surface, the pull of gravity may reduce the amounts of water reaching these young sprouts.

Agri-Blend, a mixture of HYDROGEL, a water-absorbing polyacrylamide, and Zeolite, a clay capable of transporting water, have been tested on several crops and have been shown to help move and maintain moisture around seed and sprouts. For maximum effect, Agri-Blend is applied just behind the chisel opener in the slot where the onion sprout will be placed.

Previous demonstrations using Agri-Blend have shown an increase in yield and quality of different crops such as tomatoes, peppers and transplanted onions when compared to the untreated areas of these crops. In 1997, yields were increased from 755 bags (50 lbs) on the untreated areas to 855 bags per acre on the areas treated with Agri-Blend on transplanted onions at the Frank Milenski Farm.

Materials and Methods

Vaquero variety onions sprouts were planted March 27 with three rows per 60-inch bed. The rows were spaced 7-inches apart with the center row directly above the drip line. The sprouts were placed about 4-inches apart in chisel slots (Figure 1.). The Agri-Blend was applied at the rate of 15 pounds per acre using two methods, just behind the chisel opener (Treatment 2.) and broadcast on top of the bed (Treatment 3.) as compared to an untreated area (Treatment 1.). Figure 2 shows the type of chisel opener equipped with Gandy boxes to place the Agri-Blend in the slot.

The drip lines are 8 to 10 inches below the surface and the crop was irrigated as soon as possible after transplant. A total of approximately 15 inches of well water was applied during the growing season. Water from the well is fairly high in salts at around 1800 parts per million (ppm) Total Dissolved Solids (TDS) as compared to river water at approximately 800 ppm TDS.

The crop was fertilized with 150 pounds per acre of 10-34-0 and 150 pounds per acre of 20-0-0-5. A solution of the fertilizer was sprayed on the bed and then re-bedded to get the fertilizer in the top of the bed. A solution of 28-0-0 was applied through the drip system as needed, usually after a hail or other type plant stress.

Four replications each 5-foot long on each of the three rows were harvested from each bed on July 29 and air-dried. The onions were then graded, separated and weighed on August 6 to determine quality and yield.

Results and Discussion

The onion transplants grown where Agri-Blend was applied in the chisel-slot (Treatment 2.) produced higher yields, better quality and greater returns than the broadcast Agri-Blend (Treatment 3.) and the untreated check (Treatment 1.) The chisel-slot applied Agri-Blend produced a total of 368 bags per acre (50-pound bags) with a gross return of \$2,968 per acre as compared to 289.1 bags and \$2,150 on the untreated check and 271.1 bags and \$2,052 on the broadcast Agri-Blend area, as shown in Table 1.

The higher yields and returns from Treatment 2 are due mainly to a greater number of Jumbos and Mediums. Treatment 2 produced 325.7 bags as compared to 226.6 for Treatment 1 and 221.4 for Treatment 3.

Part of the lack of response from the broadcast application, Treatment 3, was that the Agri-Blend was applied on top of the ground behind the furrow opener and did not get enough product down in the area of sprout roots. The Agri-Blend was broadcast on top of the bed at planting, not incorporated in the soil before planting as is normally recommended for broadcast applications.

Even though above average rainfall was received in 2004, most of these rains were received too late to be beneficial to the young transplants and the results of these demonstration trials would indicate that the moisture held close to the sprouts by the Agri-Blend aided in early growth. This early growth appears to be the reason for the higher yields, better quality and greater returns on the transplant onions treated with chisel-slot applied Agri-Blend.

Table 1. Yield, Quality and Gross Return of Transplanted Onions, Hanagan Farms, Swink, CO, 2004

Treatment	Jumbos Bags/Ac.	Value Per Bag	Return Per Acre	Mediums Bags/Ac.	Value Per Bag	Return Per Acre	Prepacks Bags/Ac.	Value Per Bag	Return Per Acre	Total Bags Per Acre	Total Return Per Acre
1. Check	11.3	\$10	\$113	215.3	\$8	\$1,722	63.0	\$5	\$315	289.6	\$2,150
2. Furrow-Slice	75.0	\$10	\$750	250.7	\$8	\$2,006	42.3	\$5	\$212	368.0	\$2,968
3. Broadcast	15.7	\$10	\$157	205.7	\$8	\$1,646	49.7	\$5	\$249	271.1	\$2,052



Figure 1. Transplanted onion sprouts hand-planted on 4-inch spacing.



Figure 2. Chisel-slot opener of type used to apply Agri-Blend with Gandy boxes feeding the six inside rows. The outer untreated rows are used for comparison to the inside treated rows.