Drier levels produced tough and woody carrots. Growers should carefully consider and try, on a test basis, growing carrots using less water than is currently customary to determine if these reported advantages can be achieved under his farm conditions.

Response of Dry Onions to Varying Levels of Soil Moisture

(W. D. Pew)

Abstract: Onions respond favorably to increasing levels of soil moisture as measured by increase in bulb size and total yields. Maintaining a soil moisture level of 18-20 centibars of tension (nearly field-holding capacity) produces the greatest yields of bulbs. However, dry onions so produced are somewhat softer in texture, tended toward thick-neck growth, matured slower, and are more difficult to cure adequately in the normal length of time. Onions grown on lesser amounts of water tend to have the reverse characteristics. Costs of production are similarly increased under high soil moisture levels because of the need for replacing nitrogen leached out of the root zone. Also, the costs of the water and its application must be increased. Therefore, the economics involved would be a required consideration.

Introduction

The influence of certain cultural factors on maturation, yield and storability of dry (bulb) onions has been of concern to Arizona growers who are interested in growing and shipping high quality onions. Of the many factors that might be considered, it seemed that the irrigation practice would give the most important influence in producing this kind of production. To measure the influence tests have been conducted over the past five years and have given rather interesting results.

Methods

Yellow Granex onions were planted on October 29 in the usual commercial manner on beds 40 inches apart with six seed rows per bed. Each group consists of three individual rows one and one-half inches apart and were planted so that the two groups were six inches apart on the bed surface. Naked (uncoated) seeds were planted approximately one-half inch deep and at the rate of three pounds per acre. Planting was done in a dry seedbed with a three-bed commercial vegetable planting sled. On July 9 the area received a 10-ton per acre application of manure prior to preparation and bedding. Plots were 10' x 50' with the treatment influenced and harvest area consisting of 6.67' x 50'. A 40-inch or single buffer bed was planted between each plot. Five treatments were used: very wet (18-20 centibars of tension), wet (35-40 centibars of tension), medium (55-60 centibars of tension), dry (75-80 centibars of tension), and very dry (fibreglass block resistance reading of 380 on the high range). Dial-type tensiometers were placed eight inches deep in two of the center replications near the center of the plots. Water was applied when the average of the

instruments reached the approximate level indicated for the treatment. The duration of the application was long enough to reduce the instrument readings to or near 0. The crop was harvested on May 21 and the bulbs were sized and graded on May 28 which permitted a week for curing. All irrigations followed the three uniform applications (October 30, November 13, and December 2) which were used for germination and stand establishment. Treatments irrigation dates are as follows:

1. March 10, 16, 20, 25, 30; April 4, 10, 14, 17, 20, 23, 26; May 2, 5, 8, 11, 15.
2. March 16, 25; April 2, 10, 14, 20, 25, 29; May 4, 8, 13.
3. March 19, 30; April 7, 14, 20, 27; May 4, 11, 15.
4. March 20; April 2, 11, 17, 23, 29; May 5, 13.
5. May 8, 15.

Rainfall occurred as follows: March 3 - .24 inch, 23 - .06 inch, and 24 - .03 inch.

Results and Discussion

The data in Table 1 typifies the response of bulb onions to soil moisture levels. By comparison with most other vegetables, this crop requires higher levels of moisture to produce maximum yields. Note the almost straight line decline in yields between the first four treatments and the even sharper reduction in the fifth treatment going from Treatment 1 to 5.

The differences in yield in each treatment compared with each adjacent treatment in Table 1 were sufficient to be highly significant. The requirement for higher levels of moisture are undoubtedly results of the limited area of root invasion, hence a restricted area from which water could be withdrawn. The shallow root system, along with the fact that onions are planted on high population basis, creates a heavy water demand in a limited area of the soil. From these data it is suggested that onion growers should avoid allowing this crop to reach any water stress level.

Table 1

Treatment	Yield 50 lb. Bags/Acre Jumbo and Regular	No. of Irrig.
1. Very Wet (18-20 centibars of tension)	1082	17
2. Wet (35-40 centibars of tension)	996	11
3. Medium (55-60 centibars of tension)	949	9
4. Dry (75-80 centibars of tension)	915	8
5. Very Dry (Fibreglass block resistance reading of 380 on the high range)	497	2

However, there are complicating factors associated with the very high and high levels of soil moisture, one of which is the onions from these wetter plots are softer in texture and tended not to cure or reach shipping quality as well as those from the dry and very dry plots. It would appear that this factor would require some consideration in the overall production picture. Likewise, onions grown under the very wet levels tended toward thick-neck growth and slower maturity. It was noted also that they were milder to the taste. The opposite conditions were true of the very dry plots, hence progressively more time will be required to cure bulb onions grown under these wetter conditions. Care should also be taken to assure an adequate level of fertility, particularly for nitrogen, where the soil is kept at high levels of moisture. This is necessary to offset the nitrogen lost through leaching.

Economic Feasibility of Chili Production in Northern Arizona

(Raymond O. P. Farrish)

The economic feasibility of chili production in Northern Arizona was studied for presentation to a group at Concho, Arizona. Based on a comparison of areas, costs and returns were predicted to be similar to those obtained in the Upper Rio Grande areas of New Mexico. The following tabulation shows expected returns:

New Mexico Green Chili Production - 1962*

Acres per farm	1.90
Tons per acre	2.95
Price per ton	$156.00
Gross receipts per acre	$460.20

*Data apply to Upper Rio Grande area only and are not applicable to other areas of New Mexico.

Further details are available from the Agricultural Extension Service at Tucson.

Chili Pepper Variety Trials

(N. F. Oebker, Carmy G. Page and County Agents)

Abstract: Results from pepper variety tests across the state indicate that New Mexico 6-4, Rio Grande 21 and Sandia A are desirable varieties to grow in Arizona. Which variety to select will depend on use, location and individual preferences. No variety in the tests was found suitable for growing for paprika.

Introduction

Chili peppers are a very important crop for some growers in Arizona. Most of the acreage is centered around the Elfrida-McNeal area of Cochise County;