

Hints On Growing Spring Oats

(Continued from Page 19)

in the 5-leaf stage, (2) in the early boot, and (3) in blossom. Consequently, a lack of rain during any of these times that the oats are in the stages mentioned above will lower grain yields. Frequent light rains would result in higher yields in oats. However, the effects of the shading by the clouds on the oat plant will result in a decrease in photosynthesis.

The effect of decreased photosynthesis decreases the rate of growth and thus increases water requirements in the oat plant. Diseases increase the water needed to produce a unit of dry matter in oats.

There are some growth characteristics which oats displays that can be used to determine if drought was prevalent any time during the growing season. Drought during heading reduces the number of panicles; after heading it reduces the number of grains per panicle, but the grains are larger. Plants are generally more slender and more stunted, possess a more waxy coat than those grown in wet soil, head earlier, and produce a higher grain:straw ratio. Drought followed by

ample moisture results in renewed growth and a delay in heading.

The type of soil texture does not affect water requirements in oats, but the ability of the oat root system to absorb water is an important factor in wilting of the plant. The fertility of the soil seems to have a higher priority to the oat plant than the soil type. Oats grown in either a clay or sandy soil needed less water to produce an abundant yield wt of the embryo, they consist of the primary roots (radicle) and, and sulfur were added to these soils.

Broad-leaved varieties that grow luxuriantly have been show to have a lower water requirement than varieties with fewer leaves. Early maturing varieties use more water early in the season but the total amount used is about the same as the later maturing varieties.

Temperature

All of the studies in oats production point to the fact that oats require a cool climate for best production. Since oats thrive at cool temperatures, spring oats must be seeded early for best results. In general, this means that oats are best when sown in cold soil.

Oats require a comparatively cool temperature during the period of germination and of greatest growth: the shooting, booting, and heading stages. Otherwise production is likely to be reduced regardless how favorable all other factors for growth may be.

So, in obtaining the best yield in oats, it is important to plant early. This will allow the plants to reach, and, if possible, pass through the stages men-

tioned above prior to the arrival of warmer weather.

The minimum temperature for growth in oats is between 38° and 40° F. All varieties, whether planted early or late, need approximately the same number of heat units to emerge from the soil, provided adequate moisture is available. The number of heat units from planting to heading also are approximately the same, regardless of planting dates; but, early maturing varieties require fewer heat units than do later-maturing varieties. Thus, temperature seems to be the primary factor affecting maturity.

Light

The duration of light during the daylight hours influences the size of the oat plant compared to the amount of seed head produced. There has not been any observed relationship between the number of cloudy days and the yield of oats. An increase in day length will shorten plant height and hasten flowering. In seasons of heavy rainfall and cloudy weather, oats grow tall. In seasons of low precipitation and abundant sunlight, oats are short. However, the light requirement for oats is higher than for wheat or barley.

The effects of light on flowering of oats only happen between the tillering and the shooting stages. It has been found that the length of the dark period determines head initiation. It takes a dark period of less than nine hours for properly heading out of oats. Getting the oat plant to a stage of maturity to head out as close to June 21 is in the best interest of the producer.

Summary

From information included here, it is evident that there are some complexities in managing a productive crop of oats. Here are some management principles that we can glean from this information.

- Plant early. All small grains will germinate and make some growth at temperatures close to freezing. Low temperatures do not necessarily injure oat seed. The recommended dates for planting in much of western Pennsylvania are April 1-15. The dates in the more up-land areas are April 10-25. There are many growers planting oats before these dates every year and getting excellent yields.

- Plant uniformly. Plant the seeds at a depth of 1 to 1.5 inches. The width of the row was found to be somewhat of a factor; in Illinois, spring oats obtained the highest yields in 8-inch rows, in most years, over 4-inch rows. This could explain why many of the grain drills made for the mid-west have 8-inch drill widths.

- Plant conventionally or no-till. The county demonstration plot was planted using a no-tilled planter with good results. Other growers have been using no-till plantings of oats and also getting good yields. Growers who go with field preparation of plowing, disking and then planting have been getting good yields too. Getting the seed sown in a timely manner is more important than what grain drill made the planting.

- Plant enough. The desired plant

(Turn to Page 21)

Variety	Grain yield (bu/A)	Bushel weight (lb/bu)	Plant height (in)	% Lodging
Armor	129.5	35	41	30
Hercules	127.2	37	43	10
Ogle	123.8	34	37	15
GR 65	118.2	36	42	15
Prairie	117.1	35	39	20
Chairman	117.1	33.5	41	20
Belle	103.6	35.5	42	60
Gem	102.5	36	42	80
Averages	117.4	35.2	41	31

Variety	Grain yield (bu/A)	Bushel weight (lb/bu)	Plant height (in)
GR 65	130.7	36	45
Armor	126.6	36	44
Hercules	124.0	37	45
Ogle	123.9	34	42

Table 1 Two-year performance summary of spring oat varieties in Centre County, Pennsylvania in 1996-97

Variety or selection	Grain yield (bu/A)	Bushel weight (lb/bu)	Plant height (in)
Blazer	157	34.3	35
Rodco	152	33.6	36
Chaps	144	33.6	37
Whitestone	144	31.7	32
Armor	143	33.2	35
Jerry	137	34.4	38
Ogle	134	32.2	36
Hazel	142	33.2	33
Newdak	132	31.9	36
Premier	131	36.9	35
Hercules	131	33.7	37
Hamilton	129	32.8	34
Dane	127	31.1	34
Pennuda	90a	42.2	29

a Hulless oat variety. Estimated yield on a hulled basis is 129 bu/A.

1997 PA Spring Oat Performance Tests

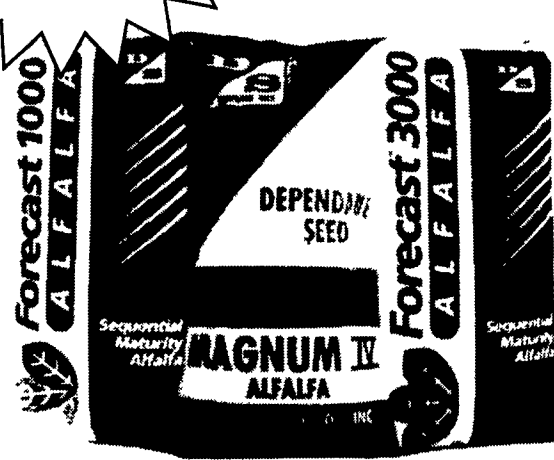
Table 2. Performance of spring oat varieties and selections in Centre County Pennsylvania, in 1997.

Variety or selection	Grain yield (bu/A)	Bushel weight (lb/bu)	Plant height (in)	Heading date
Blazer	160	34.8	32	June 20
Whitestone	160	31.5	32	June 24
Rodco	152	33.4	33	June 20
Jerry	152	34.7	34	June 18
Chaps	151	33.9	34	June 19
Hercules Fluor	150	34.4	34	June 21
Ogle	150	32.1	33	June 19
Burton	147	32.9	35	June 21
Premier	146	37.4	33	June 17
Armor	145	33.3	34	June 21
Hamilton	144	32.8	32	June 15
Hazel	142	33.7	31	June 16
Dane	139	31.3	31	June 15
Newdak	135	32.7	32	June 20
Hercules	144	33.6	37	June 23
Pennuda	90a	42.8	31	June 16
Average	144	34.2	32	-
LSD (0.05)	13	0.8	2	-
C.V. (%)	6	1.3	4	-

A Hulless oat variety. Estimated yield on a hulled basis is 129 bu/A.

NEW! FORECAST

"All Alfalfas Are Not Created Equal"



Harvest More Of Your Crop At PEAK FEED VALUE

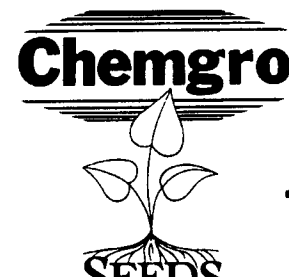
ACCORD

- Superior Multi-Leaf Variety (80% Expression)

PARAMOUNT

- Topped 4 Year Trials at Rock Springs

QUALITY - SELECTION - VALUE



P.O. Box 218, State St.
East Petersburg, PA 17520
717-569-3296
1-800-346-4769 (GROW)