

Small Grain Planting Dates and Rates

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Planting Date

Planting at the optimum time is probably the most important cultural practice in producing high yields of small grains. The general concept in selecting planting date for small grains is to plant early enough to avoid warm weather near the end of the season and late enough to avoid damaging cold earlier in the season. The optimum dates for planting small grains in Arizona are listed in Table 1 by elevation. Keep in mind that planting outside the optimum window involves risk of reduced yield, depending on growing season weather.

Frost Damage

Planting small grain crops too early increases the probability of frost damage (Table 2). Temperatures below 30°F are usually required to cause damage. Frost injury may not be readily evident during the grain ripening process and may only become apparent at harvest.

Seeding Rates

Small grains are able to produce maximum yields at a wide range of seeding rates due to yield component compensation (Fig 1). For Arizona, optimum seeding rates are about 120 lbs/acre for barley, 135 lbs/acre for wheat, and 150 lbs/acre for durum.

Germination and Emergence

Germination and emergence problems may occur if seed is planted too shallow or too deep. When planting into moisture, seed should be planted below the dry mulch and on top of or into the moist soil, at a depth of 1-2 inches. About 75% of the seeds planted emerge but emergence often varies from 50-100% depending on soil and weather conditions. The density of the plants that emerge and survive is a better indicator of optimum seeding rate than the number of viable seed planted per acre. Stand uniformity is one of the best indications of whether or not a seeding rate is optimum or the stand is adequate. A gap of more than 12 inches would probably result in yield loss. Increasing the seeding rate may or may not compensate for lack of stand uniformity. Seeding rate is often increased to compensate for a later than optimum planting dates.

Replanting Decisions

Replanting decisions should be made shortly after emergence. The optimum stand for barley is about 18 plants per square foot and 22 plants per square foot for durum and wheat. Replanting decisions should be based on the number of seedlings that emerge, uniformity of emergence, yield decrease due to later planting, costs associated with replanting, reasons for poor stand establishment, and the ability to correct these problems.

Table 1: Planting Dates for Small Grains in Arizona. These recommendations are for spring wheat and barley.

| Elevation (feet) | Planting date |
|------------------|----------------|
| 0-1000 | Dec 15- Jan 15 |
| 1000-2000 | Nov 15- Dec 15 |
| 3000 | Dec 1- Jan 1 |
| 4000 | Feb 1-Feb 15 |
| 5000 | Feb 15- Mar 1 |
| 6000 | Mar 1- Mar 15 |
| 7000 | Mar 15- Apr 1 |

Table 2: Heading dates, maturity dates, and frost risk for various planting dates at Maricopa for durum.

| Planting date | Heading date | Physiological maturity date | Frost damage probability (%) |
|---------------|--------------|-----------------------------|------------------------------|
| Nov 1 | Mar 6 | Apr 27 | 38 |
| Nov 15 | Mar 16 | May 2 | 22 |
| Dec 1 | Mar 24 | May 6 | 13 |
| Dec 15 | Mar 30 | May 8 | 8 |
| Jan 1 | Apr 4 | May 11 | 2 |
| Jan 15 | Apr 9 | May 13 | 0 |

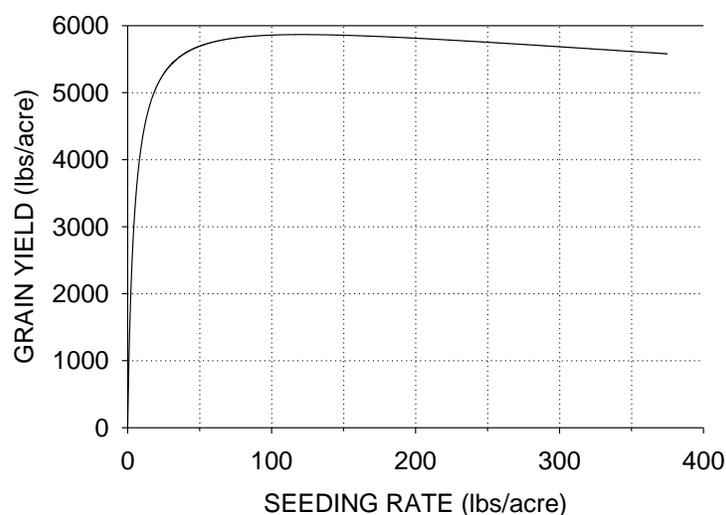


Fig. 1. Generalized grain yield response to seeding rate for durum.

Also see:

Ottman, M. 2004. Seeding rates for small grains in Arizona. <http://cals.arizona.edu/pubs/crops/az1334.pdf>

Ottman, M. 2004. Planting Dates for Small Grains in Arizona. <http://cals.arizona.edu/pubs/crops/az1333.pdf>

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