

Development of Canaryseed Production in the Central High Plains of the United States.

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Abstract

Research is being conducted to determine the feasibility of producing canaryseed (*Phalaris canariensis*) in the Central High Plains area of the United States. Work is being coordinated by the staff of the University of Nebraska Panhandle Research and Extension Center located at Scottsbluff, Nebraska. Canaryseed is grown in the cooler regions of North America and may be suited to the local climate. There are a limited number of crops that grow well in this area and another cropping possibility would benefit the local economies. Canaryseed is commonly included in birdseed mixtures, and would fit in this region where local markets for birdseed are well developed. Several common components of birdseed are locally produced and packaged. These include sunflower seeds and proso millet. The packaging facilities have a need for more product. Several years of experience demonstrate that this crop can be grown here under irrigation. Preliminary results show that a row spacing of 15 cm produces more seed than 30 cm spacing and that planting rates of 20 to 30 kg/ha are optimal for grain production.

Media Summary

Canaryseed may be economically grown in the Central High Plains of the United States because of suitable climate, new populations, improved management practices and favorable existing market possibilities.

Key words

canaryseed, market, climate, economics.

Introduction

Climate of the Nebraska Panhandle

Low precipitation, high elevation, and low humidity are factors in high diurnal temperature fluctuations and extreme seasonal variation. These conditions are unfavorable for many crops, but are well tolerated by early season crops such as spring grasses. Early maturing crops such as canaryseed also have less exposure to the hail season, which peaks in mid-summer.

Cropping systems

Some of the crops successfully grown under irrigation are sugar beets and dry edible beans. These require multi-year rotation systems, with a limited selection of alternative crops. Canaryseed is grown in the cooler regions of North America, and may be suited to the local climate, but is expected to experience stress during hot springs. There are a limited number of crops that grow well in this area, and another cropping possibility would benefit the local economies.

Market potential

Canaryseed is commonly included in birdseed mixtures, and would fit in this region where local markets for birdseed are well developed. Several common components of birdseed are locally produced and packaged. These include sunflower seeds and proso millet. Regional packaging facilities have a need for more product in general and are currently importing canaryseed.

Methods

Canaryseed was grown under mass selection for three years. New material from the USDA/ARS Plant Introduction Station was planted and the best lines were selected and bulked for evaluation in 2002. A row spacing and seeding rate study was initiated in 2003. A split block design was used with a factorial arrangement of treatment with row spacing as main plots, entries as subplots and seeding density as sub-subplots. Trials were grown in two locations under irrigation, and fertilized according to recommendations used for spring wheat. Seeding rates were from 10 to 50 kg/ha, with row spacing of 15 and 30 cm.

Results

Two populations with marginal adaptation to the region have been identified. This material has been used to develop management guidelines. While locations were very different from each other, none of the location interactions were significant for grain yield. Preliminary results show that 15 cm row spacing was higher yielding than 30 cm, and that seeding rates of 20 to 30 kg/ha are optimal. No significant difference in the two populations was detected and the population * seeding density interaction was not significant. However, it was noted that the narrower row spacing was slightly more responsive to higher seeding rates. Observations indicate that planting depths of < 2.5 cm are best.

Table 1. Nebraska yields (kg/ha) over locations in 2004

		Seed Rates (kg/ha)				
		10	20	30	40	50
Spacing (cm)	Spacing Mean ¹	Yield (kg/ha)				
15	1290 ^a	1160	1270	1550	1210	1270
30	1100 ^b	1050	1200	1080	1080	1090
Rate Mean ²		1100 ^b	1230 ^a	1310 ^a	1150 ^{ab}	1180 ^{ab}

¹ Yields for spacing with the same letter are not significantly different at p=0.05.

² Yields for rate with same letter are not significantly different at p=0.05.

Conclusions

The development of adapted populations along with these improved management techniques provides an opportunity for canaryseed to be grown as an alternative to traditional crops in cropping rotations and will make a significant contribution to agriculture within the region.