

()

//

()

()

()

()

()

()

:

()

%

()

()

()

()

(, , , ,)

(.)

()

()

()

(, , ,)

(

()

()

()

()

()

()

(, ,)

(

()

(.)

(.)

()

()

()

()

/

()

()

(.)

(.)

()

(ZGS=11)

:

)

(

(

)

Fine

mixed, mesic Typic Calcixerepts

/ (EC)

pH

)

(

)

(

)

(

(

)

(

)

/

/

/

/

/

/

Archive of SID

() ()

MSTAT-C

() ()

() ()

() ()

() ()

()

()

()

() ()

(

()

() () ()

() () ()

() () ()

()

()

(

:

() () () () () () () ()

() ()

()	()
-----	-----

()

/ A	/ B	/ A	/ A
/ B	/ A	/ A	/ A
/ B	/ A	/ B	/ B
			()
/ A	/ A	/ C	/ A
/ AB	/ B	/ B	/ A
/ B	/ BC	/ AB	/ A
/ B	/ C	/ A	/ A

()

()

()

()

)

(

()

()

(, ,)

()

()

()

.()

()

()

()

.()

()

()

()

()

()

(

/ Aa / Ab / Aa Aa Aa Aa

/ ABb / ABab / Aa Aa Aa Aa

/ Bb / ABab / Aa Ab Aa Bb

/ ABab / Bb / Aa Aa Aa ABa

.()

()

()

()

()

()

.()

()

()

.()

.()

()

:

() ()

() () (p<0.05)

() ()

() ()

() ()

() ()

() ()

()

/ Aa	/ Ab	/ Aab	Aa	Ba	Ba
/ Ba	/ Aa	/ Ba	Aa	Ba	Aa
/ Ba	/ Aa	/ Cb	Ab	ABab	Aa
/ Ba	/ Aa	/ Cb	Ab	Aab	AB

()

()

()

()

()

()

()

()

()

()

()

()

()

()

()

()

()

()

()

()

()

()

()

Archive of SID

()

()

()

()

()

)

()

()

-
- 1. Source size
 - 2. Sink size

Archive of SID

()

()

()

()

()

()

()

()

()

() " "

()

()

()

AG

()

LB

()

1. Sink

REFERENCES

9. Anderson, W. K. & W. R. Smith. 1990. Yield advantage of two semi-dwarf compared with two tall wheats depends on sowing time. *Aust. J. Agric. Res.* 41: 811-826.
10. Campbell, C. A., F. Selles, R. P. Zentner, J. G. McLeod, & F. B. Dyck. 1991. Effect of seeding date, rate and depth on winter wheat grown on conventional fallow in S. W. Saskatchewan. *Can. J. Plant Sci.* 71: 51-61.
11. Corny M. J. & A. Hegarty. 1992. Effect of sowing date and seed rate on the grain yield and protein content of winter barley. *J. Agric. Sci. Camb.* 118: 279-287.

12. Coventry, d. R., T. G. Reeves, H. D. Brooke & K. Cann. 1993. Influence of genotype, sowing date, and seeding rate on wheat development and yield. *Aust. J. Exp. Agric.* 33: 751-757.
13. Donald, H. S. & E. Bahman. 1999. Planting date and phosphorus fertilizer placement effect on winter wheat. *Agron. J.* 91: 707-712
14. Doyle, A. D. & R. W. Kingston. 1992. Effect of sowing rate on grain yield, kernel weight, and grain protein percentage of barley (*Hordeum vulgare* L.) in northern New South Wales. *Aust. J. Exp. Agric.* 32: 465-471.
15. Gallagher, E. J. 1984. *Cereal Production*. Butterworth & Co Ltd. 317p.
16. Gaudet, D. A., A. Laroche & B. Puchalski. 2001. Seeding date alters carbohydrate accumulation in winter wheat. *Crop Sci.* 41: 728-738.
17. Hay, R. K. M. 1986. Sowing date and the relation between plant and apex development in winter cereals. *Field Crops Res.* 14: 321-327.
18. Hucle, P. & R. J. Baker. 1989. Tiller phenology and yield of spring wheat in a semi-arid environment. *Crop. Sci.* 29: 631-635.
19. Johnson W. J., W. L. Hargrove & R. B. Moss. 1988. Optimizing row spacing and seeding rate for soft red winter wheat. *Agron. J.* 164: 164-166.
20. Joseph, K. D. S. M., M. M. Alley, D. E. Brann & W. D. Gravelle. 1985. Row sowing and seeding rate effects on yield and yield components of soft red winter wheat. *Agron. J.* 77: 211-214.
21. Kelley, K. 2001. planting date and foliar fungicide effects on yield components and grain traits of winter wheat. *Agron. J.* 93: 380-389.
22. Kirby, E. J. M. 1969. The effect of sowing date and plant density on barley. *Ann. Appl. Biol.* 63: 513-521.
23. Marshall, G. C. & H. W. Ohm. 1987. Yield responses of 16 winter wheat cultivars to row spacing and seeding rate. *Agron. J.* 79: 1027-1030.
24. McDonald, G. K. & W. K. Gardner. 1987. Effect of waterlogging on the grain yield response of wheat to sowing date in south-western Victoria. *Aust. J. Exp. Agric.* 27: 661-670.
25. McDonald G. K., B. G. Suttin & F. W. Ellison. 1983. The effect of time of sowing on the grain yield of irrigated wheat in the Namoi Valley, New South Wales. *Aust. J. Agric. Res.* 34: 229-240.
26. McIntosh, M. S. 1983. Analysis of combined experiments. *Agron J.* 75:163-155.
27. McLeod, J. G., G. A. Compbell, F. B. Dyck & C. L. Vera. 1992. Optimum seeding date for winter wheat in southwestern Saskatchewan. *Agron. J.* 84: 86-90.
28. Puckridge, D. W. & C. M. Donald. 1967. Competition among wheat plants sown at a wide range of density. *Aust. J. Agric. Res.* 18: 193-211.
29. Rawson, H. M. 2000. *Irrigated Wheat (managing your crop)*. FAO. 95p.
30. Reginelli, D. B., N. W. Buehring, R. L. Ivy, T. E. Foster & G. D. Summers. 1991. Wheat response to tillage systems and planting dates. Southern Conservation Tillage Conference. P. 68-71.
31. Sharma, S. K., V. Sardana & A. S. Randhaw. 2000. Effect of time of sowing and levels of NPK fertilizer on the grain yield and yellow berry incidence in durum wheat (*Triticum durum*). *Field Crop Abs.* 53: 925.
32. Spink, J. H., G. D. Lunn, R. W. Clare & M. J. Foulkes. 2002. Sowing date and seed rate in wheat and oilseed rape. HCGA conference 2002. London.
33. Stapper, M. & R. A. Fisher. 1990. Genotype, sowing date and plant spacing influence on high-yielding irrigated wheat in southern New South Wales. II. Growth, yield and nitrogen use. *Aust. J. Agric. Res.* 41: 997-1019.
34. Stem, W. R. & E. J. Kirby. 1979. Primordium initiation at the shoot apex in four contrasting varieties of spring wheat in response to sowing date. *J. Agric Sci. Camb.* 93: 203-215.
35. Thiry, D. E., R. G. Sears, J. P. Sheoyer & G. M. Paulsen. 2002. Planting date effects on tiller development and productivity of wheat. <http://oznet.Ksu.edu>. 4p.

36. Tompkins, D. K., G. E. Hultgreen, A. T. Wright & D. B. Flower. 1991. Seed rate and row spacing of no-till winter wheat. *Agron. J.* 83: 684-689.
37. Verma, U. N., S. K. Pal, R. Thakur, M. K. Singh & R. R. Upasani. 2000. Nutrient balance and productivity of wheat under different density and fertilizer doses in alfisol. *J. Res. Birsa Agric. Univ.* 12: 21-24.
38. Zadoks, J. C., T. T. Chang & C. F. Konzak. 1974. A decimal code for the growth stages of cereals. *Weed Res.* 14: 415-521.

Archive of SID