PLANT DEVELOPMENT AND YIELD OF OILSEED RAPE AS INFLUENCED BY TIME OF SOWING, VARIETY AND SEED RATE

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ABSTRACT

Field trials were conducted with winter oilseed rape over eight years to examine the influence of sowing date, variety and seed rate on single plant growth and development and on yield. Plant development in autumn is mainly dependent on the sum of temperature. Single plant development only allows vague yield predictions. The considerably delayed development at late sowing date, that is in early september, did not necessarily lead to yield losses. The seed rate should be high to ensure plant densities of 40 - 60 plants /m^2.

INTRODUCTION

Plant development, overwintering and yield of winter oilseed rape are depend on sowing date and sowing rate. In field trials the effects of sowing on plant development in autumn and plant losses during overwintering were analysed.

EXPERIMENTAL

Table 1 shows the structure of the field trials. The dry weight in autumn was influenced by sowing date and sowing rate (Figure 1). A well developed plant should have a root neck diameter of 5 mm and unelongated shoot axes before overwintering. The plants need an accumulated temperature of 350 degrees above 5 degrees to reach the root neck diameter of 5 mm. The plant losses in winter were 30 - 50 % if sowing rate was high and the minimal temperature was below -15° C. The optimal time of seeding winter oilseed rape should be between the 15th to 25th of August (table 2).

Tab. 1: Experimental design

trial year	factors		
	sowing date	variety	sowing rate [1]
1984/85	10.8./17.8./3.9.	Marinus/BNW 1.49/Belinda/ Jet Neuf/BNW 1.43	60/100/180
1985/86	9.8./20.8./30.8.	Malux/Belinda/BNW 1.43	60/100/180
1986/87	11.8./21.8./1.9.	Malux/BNW 1.63 /Rubin	60/100/140
1987/88	11.8./21.8./10.9.	Malux/BNW 1.63 /Ceres	60/100/140
1988/89	10.8./22.8./9.9.	Malux/BNW 1.63 /Madora Ceres	60/100/140
1989/90	9.8./21.8./8.9.	Marex/Madora /Ceres	60/100/140
1990/91	12.8./23.8./10.9.	Madora	60/100/140
1991/92	13.8./22.8./9.9.	Madora	60/100/140

[1]germinable seeds/m^2

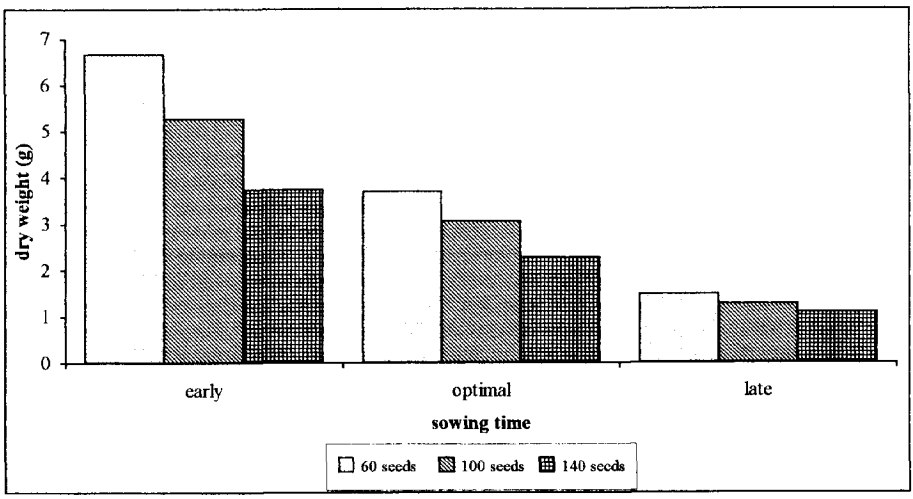

Figure 1: Dry weight of individual plants before overwintering depending on sowing time and sowing rate (varieties Marinus and Malux 1984 - 88)

Tab. 2: Yield response to sowing time (plot trials Rostock-Biestow 1985-92)

	Yield (quintal/ha)								rel.
sowing time	1985	1986	1987	1988	1989	1990	1991	1992	∅
early	38,5	43,7	33,0	46,7	58,6	40,7	41,1	41,7	100
optimal	37,6	44,1	35,8	49,0	58,0	40,3	41,4	37,8	100
late	40,0	43,7	39,0	48,7	47,1	39,9	32,0	33,0	94
$LSD_{(Tukey)}$	1,7	n. sig.	2,0	2,3	3,2	n. sig.	4,1	3,1	

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