

Response of 21 winter oilseed rape varieties to crop management at two different levels

Petr Baranyk¹, Petr Zehnálek² and Jan Kazda¹

¹Czech University of Agriculture, 165 21 Prague 6 – Suchbát, Czech Republic,
baranyk@af.czu.cz, kazda@af.czu.cz

²Central Institute for Supervising and Testing in Agriculture, 569 01 Hradec nad Svitavou,
Czech Republic, petr.zehnalek@ukzuz.cz

ABSTRACT

Czech agriculture compared to the most of EU-countries has a lack of money for a real competition in crop and food production. Very important part of Czech farming represents an oilseed rape production. Better use of the rapeseed's genetic potential could help in this situation. Two different levels of crop management (seed rate, nitrogen fertilization, growth regulators spraying in autumn and spring, sulphur fertilization and fungicide use at time of flowering) were used to test specific response of 21 winter oilseed rape varieties (17 lines, 4 hybrids). Trials were carried out at 6 locations (3 situated in a cold area + 3 in a warm area) in 2001/02 as a small plot trial with 3 replications. Trials were successfully established at 4 sites. Influence of additional inputs in higher management level delayed maturation by 1-2 days, reduced lodging (very different depending on variety) and damage especially in case of *Sclerotinia sclerotiorum* and *Phoma lingam*. Thousand grain weight was higher for most varieties in higher management level (0-13%), yield increased by 35% on average (12-77% depending on location). Yield increase of varieties varied greatly due to trial location. As expected, higher yields were achieved at higher levels of crop management, but response to higher inputs was not the same. Efficiency of input used by some varieties was better compared to others. This phenomenon can be exploited by farmers when choosing the most appropriate variety for the actual both environmental and fiscal position of their farm.

Key words: Winter oilseed rape – crop management levels – yield – efficiency of inputs

INTRODUCTION

Czech agriculture compared to the most of EU-countries has a lack of money for a real competition in crop and food production. Very important part of Czech farming represents an oilseed rape production. Better use of the rapeseed's genetic potential could help in this situation.

MATERIALS AND METHODS

Two different levels of crop management (seed rate, nitrogen fertilization, growth regulators spraying in autumn and spring, sulphur fertilization and fungicide use at time of flowering, Tab. 1) were used to test specific response of 21 winter oilseed rape varieties (17 lines, 4 hybrids). Trials were carried out at 6 locations in the Czech Republic (3 situated in a cold area + 3 in a warm area) in 2001/02 as a small plot trial with 3 replications.

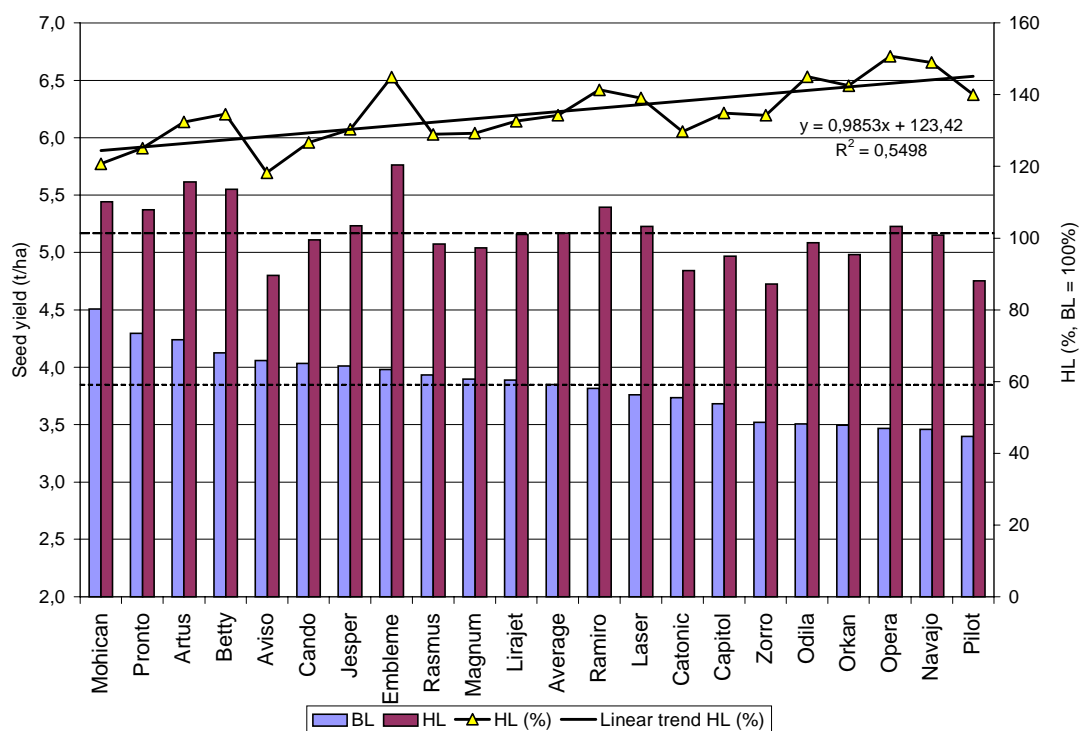
Table 1. Two levels of crop management

	Levels of crop management	
	Basic level (BL)	Higher level (HL)
Seed rate	100 seeds/m ² Embleme 60 seeds/m ²	lines 70 seeds/m ² hybrids 50 seeds/m ²
N fertilization	140 kg/ha after cereal forecrop 90 kg/ha after legumes	190 kg/ha after cereal forecrop 140 kg/ha after legumes
S fertilization	None	40 kg S/ha
Growth regulators	None	Horizon 1 l/ha autumn Caramba 1 l/ha spring
Fungicide spraying	None	Sportak Alpha, 1,5 l/ha BBCH 65

RESULTS

Trials were successfully established at 4 sites, 2 locations were damaged and no exploitable from the final point of view. Influence of additional inputs in higher management level delayed maturation by 1-2 days, reduced lodging (very different depending on variety) and reduced damage especially in case of *Sclerotinia sclerotiorum* and *Phoma lingam*. Thousand grain weight was higher for most varieties in higher management level (0-13%), yield increased by 35% on average (12-77% depending on location). Yield increase of varieties varied greatly due to trial location.

Fig. 1. Winter oilseed rape 2001/02, basic/higher level crop management. Seed yield, average of 4 trial sites



DISCUSSION

As expected, higher yields were achieved at higher levels of crop management, but response to higher inputs was not the same. Efficiency of input used by some varieties was better compared to others. This phenomenon can be exploited by farmers when choosing the most appropriate variety for the actual both environmental and fiscal position of their farm.

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