

WEED CONTROL IN WINTER OILSEED RAPE GROWING IN VIEW OF THE CONDITIONS IN BULGARIA

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INTRODUCTION

Oilseed rape is a very profitable field crop which requires intensive care to achieve the desired yields. Weed management is an important factor for the successful production. Protecting the crop from weeds, diseases and pests during the entire period of vegetation is the key to success ensuring higher yields. Infestation with weeds influences the growth of the crop and leads to a slowdown of development and lower yields. Weeds compete with the rapeseed strongly and decrease the yield and reduce the resistance of the rapeseed plant to winter frosts. That is why it is so important to fight weeds. Weed management proves to be a key factor in the technology of oilseed rape growing.

The aim of this paper is to point out the weeds which have the greatest economic significance for the growing of winter oilseed rape and to examine the ways in which they influence the development of this crop causing a decrease in its biological potential. This paper also explores the ways and means of fighting these weeds.



MAIN BODY

Two weeds – Wild Mustard (*Sinapsis arvensis*) and Wild Radish (*Raphanus raphanistrum*) are of economic importance as regards the growing of winter oilseed rape. These two weeds belong to the same family – the Brassicaceae. The seeds of these weeds are not separated from the rape seeds when they are cleaned and this leads to lowering of the quality of the oil obtained from rapeseed. In addition this influences badly the cleanliness of the seeds of seed bearing plants. Another problem is posed by volunteer cereals which arise from seeds shed at or before harvesting the previous crop. If the fields that are allocated to rapeseed production are infested by perennial weeds which have a well developed root system or ones which form suckers, weed control should start as early as the growing of the previous crop. To achieve this aim stubble fields should be treated with broad spectrum systemic herbicides based on Glyphosate (Roundup, Gliphorane 480

SL, Glyphodine 360, Glyphosate, Glyphos, Cosmic, Nasa 360 SL) in a dose of 400-1200 ml/da. Ploughing of the treated fields should be performed two or three weeks after the application of the broad-spectrum herbicide so that it penetrates the soil and reaches the root system of the weeds.

Shallow tillage of the soil that takes place before sowing, as well as rolling before and after sowing create favourable conditions for the fast and uniform germination and sprouting of the rape seeds. As a result the plants become more competitive as regards weeds and volunteer cereals. Research in this area shows that the best results in the weed control can be achieved by combining strong plants and application of selective herbicides.

Treatment with herbicides can be performed at different times – before the sowing, after the sowing and before the sprouting or at the time of the vegetation of the crop. Herbicides such as Dervinol 4F (450 g/l Napropamid), Butizan SK (400 g/l Metazachlor) and Sultan (500g/l Metazachlor) are very effective against annual dicotyledon and monocotyledon weeds and volunteer cereals. Dervinol should be introduced into the soil before the sowing in the mode of shallow incorporation in a dose of 300-350 ml/da. And Butizan and Sultan should be introduced into the soil after the sowing has been completed but before the sprouting of the crop in doses of 400ml/da and 240ml/da respectively. With these herbicides the greatest efficiency is achieved at the early stage of the development of the crop when the plants are most susceptible to the adverse effect of weeds. In fact the efficiency reaches 98% in this case. Butizan SK and Sultan 500 SK may be applied during the vegetation at the stage when oilseed rape has 2 or 4 leaves but in this case the efficiency is lower – 80% to 90%. Another herbicide – Commodore (720g/l Butam) is also very efficient against dicotyledon weeds. It should be applied in a dose of 400 ml/da after the sowing and before the coming up of the crop. If the field has been infested by different weeds, Commodore should be applied in combination with Fusilade (125g/l Fluazifop-P-butyl) in a dose of 150 ml/da which ensures 95% herbicide efficiency. At the time of vegetation and more exactly at the phase of 2-4 leaves of the crop to fight dicotyledon weeds Lentargane (640 g/l pyridate) in a dose of 150 ml/da can be applied. It is proved by research studies that if Lentargane is combined with Fusilade C and if they are used in a dose of 150 ml/da, 93% of herbicide efficiency is reached. In cases when the fields are free from dicotyledon weeds and weed control has to be performed regarding only monocotyledon weeds and volunteer cereals, the following herbicides should be used: Fusilade Super (125 g/l Fluazifop-P-butyl) in a dose of 150 ml/da, Fusilade Forte 150 EK (150 g/l Fluazifop-P-butyl plus an adhesive) in a dose of 50 ml/da or NABU Extra 9125 g/l sethoxydim) in a dose of 150 ml/da. The Bazagrane herbicide (480 g/l bentazone) turned out to be toxic to oilseed rape causing inhibition to the growth of the plants and thinning out of crops. If the weed control is conducted properly, research shows that yields could be doubled and to be more precise the dry biomass and the plant protein double while the seed output increases by approximately 30%.

CONCLUSION

To achieve high yields from oilseed rape all agrotechnical operations should be performed on time and weed management based on appropriately chosen herbicides should be carried out as well. The key element in oilseed rape growing is the successful passing of winter. To prepare the plants for the coming low temperatures in winter and to ensure a good start in spring free of weeds, it is recommended to use a fungicide with a

growth-regulation mechanism.

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