

# Influence of Sowing Density and Fungicide Application on Rapeseed Seed and Oil Yields

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## Abstract

To determine the optimal sowing density and fungicide application for rapeseed crops in our agroecological conditions, exact micro-trials were set up at the experimental facility of the Faculty of Agriculture in Zagreb in the period 2005-2007.

The trial involved five seed rates (30, 50, 70, 90 and 110 germinated seeds /m<sup>2</sup>) and crop treatment with fungicides (metconazole 60 g/l, preparation "Caramba") as well as no treatment. The hybrid Elvis served as trial crop. In all three trial years, rapeseed was sown at the optimal time (beginning of September), at a row spacing of 20 cm, at seed rates of 1.78; 2.97; 4.16; 5.35 and 6.53 kg/ha, the average 1000 seed weight being 5.61 g. Fungicide "Caramba" was applied in the autumn at a dose of 0.75 l/ha (in the 6-leaf stage, BBCH 16-18) and in the spring, 1.25 l/ha (prior to flowering, BBCH 39-55). Rapeseed was sown and harvested with the aid of special machinery for small areas. Other technology was the same as that applied in regular rapeseed production. Trials were laid out according to the random block design with five replications. Emergence, achieved plant density and rapeseed yield were strongly influenced by the agroecological conditions, i.e., year and sowing density. Significantly highest seed yields (4.81 t/ha and 4.66 t/ha) were achieved in 2005 and 2006, respectively. Significantly highest oil content (47.4% in dry matter) and oil yield (2.01 t/ha) were obtained in 2006.

In the three-year average, the significantly highest yields of seed (4.69 t/ha) and oil (1.85 t/ha) were achieved at the seed rate of 70 germinated seeds/m<sup>2</sup>, i.e. plant density at harvest of 35 (29-48) plants/m<sup>2</sup>. Fungicide application had no significant effect on seed and oil yields of rapeseed.

Key words: rapeseed, sowing density, fungicide, yield

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# Utjecaj gustoće sjetve i primjene fungicida na prinos sjemena i ulja uljane repice

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## Sažetak

U cilju utvrđivanja optimalne gustoće sjetve i primjene fungicida na usjevu uljane repice u našim agroekološkim uvjetima, postavljeni su egzaktni mikropokusi na pokušalištu Agronomskog fakulteta u Zagrebu tijekom 2005.-2007. godine.

U istraživanju je bilo pet gustoća sjetve (30, 50, 70, 90 i 110 klijavih sjemenki/m<sup>2</sup>) i tretiranje usjeva fungicidom (metkonazol 60 g/l, preparat „Caramba“), odnosno bez tretiranja. U pokusu je korišten hibrid Elvis. Sjetva uljane repice u sve tri godine obavljena je u optimalnom roku (početkom rujna), na razmak redova od 20 cm s količinom sjemena od 1,78; 2,97; 4,16; 5,35 i 6,53 kg/ha uz prosječnu masu 1000 sjemenki od 5,61 g. Fungicid „Caramba“ primijenjen je u jesen u količini od 0,75 l/ha (u fazi 6 listova, BBCH 16-18) i u proljeće, 1,25 l/ha (pred cvatnju, BBCH 39-55). Sjetva i žetva uljane repice u pokusu obavljena je specijalnom mehanizacijom za male površine. Ostala tehnologija bila je ista kao u redovnoj proizvodnji uljane repice. Pokusi su postavljeni po slučajnom bloknom rasporedu u pet ponavljanja. Na nicanje, ostvarenu gustoću sklopa i prinos uljane repice značajan utjecaj imali su agroekološki uvjeti, odnosno godina i gustoća sjetve. Signifikantno najveći prinos sjemena (4,81 t/ha, odnosno 4,66 t/ha) ostvaren je u 2005., odnosno 2006. godini. Značajno najveći sadržaj ulja (47,4% u s.t.) i prinos ulja (2,01 t/ha) ostvaren je u 2006. godini.

U prosjeku kroz tri godine, signifikantno najveći prinos sjemena (4,69 t/ha) i ulja (1,85 t/ha) uljane repice ostvaren je pri gustoći sjetve od 70 klijavih sjemenki/m<sup>2</sup>, odnosno gustoći sklopa u žetvi od 35 (29-48) biljaka/m<sup>2</sup>. Primjena fungicida nije imala signifikantan utjecaj na prinos sjemena i ulja uljane repice.

Ključne riječi: uljana repica, gustoća sjetve, fungicid, prinos

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