

Practice abstract #3.1

Benefits of growing spring cereals (hull-less barley and oats) and winter cereals (triticale) in a mixed intercropping system with spring and winter pea under extremely dry weather conditions in Serbia



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CHALLENGE

In conventional farming, the production of cereals requires high inputs, while the cultivation of pea as a pure stand could lead to diminished crop performance due to its susceptibility to lodging as well as biotic and abiotic stress factors. Mixed intercropping is considered a promising tool for sustainable agroecological systems but the lack of knowledge on how individual crops will perform under intercropping systems is currently one of the major drawbacks in the widespread use of intercropping cultivation.

SOLUTION

In order to investigate benefits of growing spring cereals (hull-less barley and oats) and winter cereals (triticale) in a mixed intercropping system with spring and winter pea in Serbia, field experiments were conducted. Seedbed preparation was carried out both in autumn and in spring. Seeding rates of the two crops in a mixed intercropping were 70% (pea): 30% (hull-less barley or oats), and 80% (pea): 50% (triticale) of the conventional seeding rate. Sowing depth and row distance for pea was 4-5 cm and 20 cm, respectively. Sowing depth and row distance for cereal crops was 3-4 cm and 10 cm, respectively. The pea

and cereal crops were sown in two different passes with the first pass of the pea that sown at a greater depth.

OUTCOME

Under extremely dry weather conditions and high temperatures during flowering, mixed intercropping of spring grain pea with hull-less barley and oats led to significantly higher plant height of cereals. The direction and extent of improvement/deterioration of traits depends on the combination of cereal and pea varieties.

PRACTICAL RECOMMENDATIONS

The selection of suitable varieties and optimal sowing rates are

crucial to achieve promising intercropping results.



About CROPDIVA

CROPDIVA wants to put 6 underused arable crops back in the fields: oats, hull-less barley for human consumption, triticale, buckwheat, faba beans and lupins.

27 European partners are joining forces to enhance agrobiodiversity in Europe. They will achieve this by focusing on crop diversity and creating local value chains.



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Benefiti uzgajanja jarih (golozrni ječam i ovas) i ozimih žitarica (tritikale) u smeši sa graškom u ekstremno sušnim uslovima (Srbija)

CILJEVI

Konvencionalna proizvodnja žitarica uključuje visoka ulaganja u agrotehniku i zaštitu protiv patogena, dok gajenje graška kao čistog useva može da dovede do smanjenja prinosa i kvaliteta zbog podložnosti graška poleganju kao i biotičkom i abiotičkom stresu. Uzgajanje žitarica sa graškom u vidu združenih useva smatra se novim vidom proizvodnje koji ima za cilj stvaranje održivih agroekoloških sistema ali još nisu dovoljno poznati benefiti gajenja retko zastupljenih biljnih vrsta u združenom sistemu.

REŠENJA

Kako bi se ispitali benefiti uzgajanja jarih i ozimih žitarica sa graškom postavljeni su ogledi krajem marta (glozrni ječam i ovas) i sredinom oktobra (tritikale). Dubina setve i rastojanje između redova za grašak je 4-5 cm, odnosno 20 cm. Dubina setve i rastojanje redova za žitarice je 3-4 cm, odnosno 10 cm. Usevi graška i žitarica mogu se sejati u dva različita prolaza sa prvim prolazom graška koji se seje na veću dubinu. Optimalnu setvenu normu dve biljne vrste u združenom usevu treba istražiti ali u do sadašnjoj praksi dobro se pokazao odnos 70 % (grašak): 30 % (golozrni ječam i ovas), odnosno 80 % (grašak): 50% (tritikale) od setvene norme u konvencionalnoj proizvodnji.

REZULTAT

U ekstremno sušnim klimatskim uslovima i visokim temperaturama u vreme cvetanja, združeni usevi jarog golozrnog ječma i jarog ovsa sa jarim graškom za zrno pokazuju tendenciju povećanja dužine biljka. Agronomski svojstva mogu biti poboljšana ili pogoršana pri združenom gajenju žitarica sa graškom, što zavisi od kombinacije sorti i setvene norme.

PREPORUKA

Dobar izbor sorte i iznalaženje optimalne setvene norme je od suštinskog značaja za postizanje dobrih rezultata gajenja žitarica i graška u združenom usevu.

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