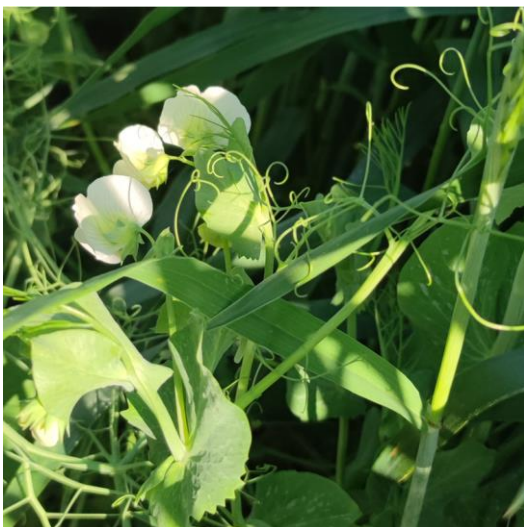


Practice abstract #3.11

Enhanced protein content in spring oats and winter triticale through intercropping with peas in Serbia's Pannonian climate



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KEY WORDS

Oat, pea, triticale, crude protein

CHALLENGE

Mixed intercropping is considered a promising tool for reducing nitrogen (N) usage in intercropping cultivation. Beneficial effects of cereal-legume intercropping on protein content in companion cereal crops are observed in many agro-ecological zones. However, the lack of knowledge on how intercropping cultivation affects N usage efficacy and how individual crops will perform under intercropping systems are currently hindering the widespread usage of intercropping.

SOLUTION

To investigate the potential of intercropping cultivation in enhancing seed quality in spring oats and winter triticale in Serbia's arid conditions, the cereal crops were grown with spring and winter peas in mixed intercropping systems at Novi Sad in Northern Serbia. Seedbed preparation was carried out both in autumn and spring (2021/2022 and 2022/2023). Seeding rates of the two crops in mixed intercropping were set at 70% (pea): 30% (oats) and 80% (pea): 50% (triticale) of the conventional seeding rate.

OUTCOME

Under extremely dry weather conditions and high temperatures, both triticale varieties expressed higher crude protein content when intercropped with winter pea cultivars, compared with pure stands, but the level of crude protein enhancement depended on the pea cultivars used in the mixtures. In the year with more precipitation, only one triticale variety had higher crude protein content when intercropped with pea. Additionally, the crude protein content of spring oats intercropped with spring pea also led to significantly higher levels of crude protein in both years. The extent of improvement in crude protein content depends on the appropriate combination of cereal and pea varieties.

are crucial for achieving enhancements in crude protein content under intercropping cultivation.



PRACTICAL RECOMMENDATIONS

Selecting suitable varieties and employing optimal sowing rates

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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Mogućnost povećanja kvaliteta semena jarog ovsa i ozimog tritikalea u združenom usevu sa graškom u klimatskim uslovima Srbije

CILJEVI

Gajenje strnih žita u združenom usevu sa graškom smatra se novim vidom proizvodnje sa potencijalom poboljšanja akumulacije azota (N) kvaliteta semena strnina. Korisni efekti združenog gajenja strnih žita i leguminoza na akumulaciju azota primećeni su u mnogim agroekološkim zonama. Međutim, nedostatak znanja o tome kako združeno gajenje leguminoza sa drugim biljnim vrstama utiče na poboljšanje osobina i efikasnost akumulacije azota trenutno su glavne prepreke u širokoj primeni gajenja strnih žita u združenom usevu sa graškom.

REŠENJA

Kako bi se ispitale mogućnosti združenog gajenja jarog ovsa i ozimog tritikalea sa graškom radi poboljšanju kvaliteta semena u agro-ekološkim uslovima na severu Srbije, postavljeni su ogledi na lokalitetu Novi Sad krajem marta (glozrni ječam i ovas) i sredinom oktobra (tritikale) u 2021/2022 i 2022/2023 vegetacionoj sezoni. Optimalnu setvena norma dve biljne vrste u združenom usevu treba istražiti ali u do sadašnjoj praksi dobro se pokazao odnos 70 % (grašak): 30 % (glozrni ječam i ovas), odnosno 80 % (grašak): 50% (tritikale) od setvene norme u konvencionalnoj proizvodnji.

REZULTAT

Pod izuzetno sušnim vremenskim uslovima i visokim temperaturama, obe sorte ozimog tritikalea su u združenom usevu sa graškom pokazale viši sadržaj proteina u semenu u odnosu na samostalne uslove gajenja. Međutim, stepen poboljšanja sadržaja proteina u zrnu zavisio je od sorte graška koji su korišćeni u mešavinama. U godini sa više padavina samo je jedna sorta tritikalea imala veći sadržaj proteina u zrnu u interkorporingu sa graškom. Združeno gajenje jarog ovsa sa graškom, takođe je dovelo do poboljšanja kvaliteta semena ovsa, ali u obe godine. Mera poboljšanja sadržaja proteina zavisila je od kombinacije sorti tritikalea i graška.

PREPORUKA

Odabir odgovarajućih sorti i primena optimalnih setvenih normi ključni su za postizanje poboljšanja u sadržaju proteina u združenom gajenju tritikalea i ovsa sa graškom.

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