

AGR1617: Intercropping Chickpea With Flax

The chickpea-flax intercrop has potential to be successful. The crops can be seeded in early May, preferably at different depths. Flax has a relatively low nitrogen fertility requirement and is efficient at using soil nitrogen due to associations with beneficial mycorrhizae. Chickpea is a nitrogen fixer and is also associated with beneficial mycorrhizae. Flax tends to consume soil moisture placing stress on the chickpeas that may encourage seed set. A trial was set up at Indian Head and Redvers in 2016 with 12 treatments. The treatments consisted of Kabuli chickpeas at 40 plants m²; Desi chickpeas at 40 plants m²; flax 40 kg/ha + Kabuli chickpeas at 30 plants m²; flax 40 kg/ha + Kabuli chickpeas at 40 plants m²; flax 40 kg/ha + Kabuli chickpeas at 50 plants m²; flax 40 kg/ha + Desi chickpeas at 30 plants m²; flax 40 kg/ha + Desi chickpeas at 40 plants m²; Flax 40 kg/ha + Desi chickpeas at 50 plants m²; flax 56 kg/ha; flax 56 kg/ha + 70-20-10-10 N, P, K, and S; flax 56 kg/ha + 70-20-10-10 N, P, K, and S + Kabuli chickpeas at 40 plants m² alternate rows; flax 56 kg/ha + Kabuli chickpeas at 40 plants m² alternate rows. At Redvers and Indian Head it was difficult to achieve the target plant densities of chickpeas that were desired. The stand was so low at Indian Head that the site had to be abandoned. All the intercropping treatments decreased the disease incidence in the chickpeas. Maturity was decreased by the intercropping treatments. The chickpea yield was significantly higher in 2016 (in some years a monocrop will not produce seed at all) than the intercrop; however the monocrop tended to have more green seed and moldy seed than the intercropped chickpeas. Interestingly the intercrop produced approximately 1,000 kg/ha of flax seed for the grower to sell. The monocrop had the highest return in dollars at Redvers in 2016, in some years this will be zero due to a lack of seed set. The intercropping treatments generated a relatively high return when the flax return is included, especially if this approach can be used to stabilize chickpea yields outside its region of adaptation. This site-year of research indicates that we can alter the disease incidence, maturity, and quality of the chickpeas at the cost of grain yield. More research is required to determine the combination of agronomic practices in intercropping chickpeas and flax to maximize seed quality, early maturity, and high yield while reducing disease pressure in chickpeas.