

عنوان مقاله:

Nitrogen yield and nitrogen use of chickpea compared to pea, barley and oat in Central Europe

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خلاصه مقاله:

European agriculture suffers from a substantial deficit of protein sources for livestock and the projected changes in agro-climatic conditions in Central Europe include a higher risk of drought. To address these challenges, the drought resistant legume crop chickpea was compared with pea, barley and oat regarding its nitrogen (N) yield, protein yield and N use and utilization efficiency under Central European growing conditions. The two year trial was conducted in eastern Austria with calcium ammonium nitrate or the depot fertilizer Basacote® Plus 6M at two levels of N rate each besides an unfertilized control. In 2006, chickpea had the lowest grain yield and grain N yield among the four crops while under drought conditions in 2007 chickpea attained a higher grain protein yield that surpassed those of barley and oat. Under both, the more humid conditions in 2006 and the drier weather in 2007, chickpea maintained a constant partial factor N use efficiency (PFNUE: grain yield per unit fertilizer N) and a consistently high N utilization efficiency (NUE: grain yield per unit N in the above-ground dry matter) for grain production whereas these parameters were severely decreased by drought with pea, barley and oat. Results indicate that chickpea could be an alternative in a future more dry climate for achieving a reasonable protein yield in Central Europe through its ability to maintain high PFNUE and NUE under conditions of drought.

کلمات کلیدی:

Chickpea, Nitrogen use, Calcium ammonium nitrate, Basacote® Plus 6M, Protein yield, Central Europe

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