

Influence of seed rate on parameters of yield for grain

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Abstract

Growing of grain often is not carried out optimal considering seed rate and sowing time. So potential of yield is used only insufficient. In north-east Germany the heating of the soil begins late in spring and the natural mineralisation is starting slowly. This is equivalent to a shortening of the growing period. Early sowing times for winter grain to ensure a good development before winter can act as a compensation. Over and above that the restricted delivery of nutrients of sandy soils low in humus during vegetation makes it difficult to maintain stocks that should develop yield over the single ear. Especially in ecological farming conditions that encourage high stocking densities are advantageous. Aims of the investigations are statements concerning parameters of yield with different seed rate and sowing time.

Basis of the analysis are one-factor trials between 1993 and 2000 in the location of Gülzow (Mecklenburg-Vorpommern) with winter rye, summer wheat, summer barley and oats. For winter rye two sowing times (around September 15th and October 1st) and seed rate between 200 and 400 seeds able to germinate per m² were considered. For summer grain differentiated seed rate (oats – 200 to 500 seeds/ m²; summer barley – 200 to 450 seeds/ m²; summer wheat – 350 to 550 seeds/ m²) were analyzed. For statistical evaluation SAS (Statistical Analysis System) and for clearing of unorthogonal data procedure MIXED of PIEPHO and MICHEL (2001) were used. For representation of connections linear and quadratic regressions were used.

For existing locations higher seed rate resulted in higher yields. Despite higher thousand-seed-weights with smaller seed rate no sufficient compensation of yield could be observed. For existing locational conditions in ecological farming the parameter ear per m² is the deciding component for yield. Independent on sowing quantity yield of winter rye is visible increased by pushing forward the sowing time. Considering costs of seeds a smaller seed rate for growing winter rye should be especially paid attention to. For summer grain higher seed rate is not always economical, too.

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