

[P3] Abiotic Stress for Crop Production

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 3 (Poster) (Abiotic Stress for Crop Production)

12:15 PM - 1:00 PM

[P3-31] Naked Waxy Barley Yield and Grain β -glucan Affected by Soil Heterogeneity in Different Arable Lands

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Due to the high dietary fiber content (β -glucan) of barley, its use in human nutrition is becoming more important in the world. Naked waxy barley contains relatively more β -glucan. Because adequate consumption of a high-fiber food is globally recommended for keeping healthy, waxy barley is one of the promising crops. In general, soils are heterogeneously distributed in cropping field. Barley, which is considered susceptible to waterlogging, often rotated with rice and exposed to waterlogging under heavy rain. Soil physico-chemical properties such as soil penetration resistance, soil water content, pH, available nutrients, which are the factors that affect the growth of waxy barley, supposed to be changed by soil heterogeneity. At present, the relationship between soil physico-chemical heterogeneity and yield of naked waxy barley are poorly understood. Here, we examined these relationships using multiple regression analysis. Two different managed fields, one with upland field converted from paddy and the other with conventional upland field, were used in this experiment. In each field, spatial variability was observed in soil properties, and upland field from paddy showed higher variation in soil properties. For grain yield in upland field from paddy, pH, EC and water content had significant influence. The β -glucan content was negatively correlated with water content. In case of conventional upland field, grain yield and spike number were influenced by EC and soil water content. For β -glucan content, EC and mineral N had significant positive influence.