Development of a Simple Model to Predict Yield of Miscanthus in Asia

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Miscanthus is the high yielding crop that has been widely studied for production of renewable energy. Because miscanthus is not a food crop, it would be preferable to produce biofuels using miscanthus rather than corn, which has been used as an energy crop. In Europe and U.S., physiological characteristics of miscanthus have been examined. As a result, crop models have been developed to predict growth and yield of miscanthus. In Asia, however, studies on miscanthus for renewable energy production are at early stage. In this study, a simple model was developed to predict yield of miscanthus, which would help to identify miscanthus production areas in Asia. Our model based on long term averages of temperature and rainfall indicated that high yield would be attainable in Korea and southern Japan. Areas near Vladivostok, Russia also have relatively high yield potential for miscanthus. However, low yield of miscanthus was predicted in continental regions in East Asia including northern China and Mongolia. Using additional climatic variables, e.g., clouds, accuracy and reliability of yield prediction model could be improved, which merits further studies.

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