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## Japanese journal of crop science

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ONLINE ISSN: 1349-0990

PRINT ISSN: 0011-1848

### Japanese journal of crop science

Vol.67 , No.1(1998)pp.30-35

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#### Annual and Locational Variations in Physicochemical Properties of Rice

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[Published: 1998/03/05]

[Released: 2008/02/14]

#### Abstract:

Annual and locational variations in the physicochemical properties of rice were studied in order to establish cultivation techniques for improving the quality of rice and to develop cultivars with high and stable palatability in any growth environment. Values of variance among years were smaller than those among cultivars in amylose content, maximum viscosity and H/A<sub>3</sub>. It was estimated that palatability in 1994 was better than other years judging from physicochemical properties. Values of variance among years were larger than those among cultivars in protein content, breakdown and H/-H. Variation among years in amylographic characteristics and amylose content was mainly affected by temperature during the ripening period. The influence of temperature during the ripening period on textural characteristics was little. A varietal difference of variation among years in physicochemical properties was also found. In addition, locational variation for H/A<sub>3</sub>, H/-H and protein content was large, while it was small for amylose content and amylographic characteristics. It was concluded that large locational variation of H/A<sub>3</sub> and H/-H was caused by variations in protein content, which was closely related to differences in the amount of nitrogen fertilizer applied. It was estimated that amylographic characteristics and amylose content were affected more by genetic background than by environmental conditions, resulting in small locational variation.

#### Keywords:

Amylographic characteristics, Amylose content, Annual variation, Locational variation, Protein content, Rice, Texture

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