Nutritional Quality of Barley

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INTRODUCTION

Nutritional quality of barley refers to a relative merit in providing available food nutrients that are essential to humans and other animals. This encompasses the total nutrients present and the biological balance and availability of these nutrients. Certain components such as fiber and amino acids may be classified as important in determining the quality of barley for certain animal species being fed for a specific purpose.

Perhaps factors affecting the nutritional quality of barley are more diverse than those affecting malting quality. This is evident when the different animal species and animal age effects that relate to improved nutritional quality are considered. Yet there was little evidence of barley breeding directed specifically for nutritional quality prior to the mid-1960s. This deficit is fairly well explained, as barley breeders and barley growers agree that yield has been a character of major importance. It is still probably the most important character since farmers are paid for quantity of feed barley rather than quality (R. F. Eslick, personal communication). High quality malting barley demands a premium and this has resulted in research and breeding for quality factors (Whitehouse, 1970). With the increasing importance of all cereals as food crops for a growing human population, barley with high nutritional quality may well be worth a premium in the future.

Nutritionally, the barley kernel is most important as an energy source, since it is rich in starch although quite low in oil. Barley kernel protein is low relative to the requirements of many animals, although wide variation is often observed in total protein nitrogen and in amino acid composition. Barley contains varying quantities of structural carbohydrates loosely defined as fiber; the total quantity is principally affected by the presence or absence of the hull or husk. Barley fiber has little or no energy value for nonruminant animals and certain of the water-soluble carbohydrate components of fiber may create digestive problems, especially in poultry. However, further research may show these polysaccharides to be beneficial to the overall health and well being of