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## Pork CRC Research Summary

# 1A - 106: Enhancing Supplies of High Quality Barley to Meet Pork Industry Demands in Queensland and Northern New South Wales

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This project was funded because more reliable and consistent protein and energy supplies can reduce pork production costs. An improvement in the quantity and quality of barley available to the Pork Industry could help stabilise costs. Development of new feed barley varieties, utilization of recommended production practices, and efficient feed quality determinations for barley are the first steps in this process.

This project was designed to study management practices for production barley and to expand the variety development goals of the Barley Breeding Australia - North Region (BBA-North) barley breeding program located at the Hermitage Research Station, Warwick to include feed quality for pigs. Regional variety drill strip trials (up to 6 sites, including interstate) and agronomic studies were conducted, and grain samples from production experiments and BBA-North breeding trials were used to assess pig feed quality. Bulk grain samples of elite varieties were provided for pig feeding trials. Rapid assessment of feed value of barley samples from breeding and agronomic trials were conducted using near infra-red spectrometry (NIR) and appropriated calibrations.

### Key findings of the project were:

1. Using ABS data, the regional production of barley and location and size of pig production throughout the northern region was analysed in order to select sites for establishment of replicated barley drill strip trials which would be relevant to the preferred grain sourcing area for the pork industry.
2. Good agronomic production practices were shown to produce more grain and improve the feeding value of barley. Maintenance of plump grain under heat/drought stress is a varietal trait.
3. The barley variety Shepherd was commercialised in 2008 and seed was available to growers in 2009. Recommended production practices for Shepherd were distributed and refined in 2010.
4. Further encouragement on the growing of Shepherd was a focus of this project in 2009 and 2010.
5. Utilisation of NIR screening of grain samples and calculated estimates of feed quality will make breeding barley varieties with good feed quality more feasible.
6. Breeding lines with consistently higher digestible energy (DE) levels and lower husk content were identified. One of them, ND19119 introduced from the USA, was recommended for release.
7. However, because of inconsistent and often low yield, commercialization of ND19119 was not continued.
8. Breeding material was identified that could rapidly improve the drought/heat tolerance of barley grown in the Northern region.

### Potential users of information and research results on barley are:

1. Pig producers - the feeding value of barley was found to be variable across varieties and production areas. These differences could be rapidly estimated using NIR technology.
2. Barley growers - new varieties grown using recommended agronomic practices can increase returns.
3. Pork industry - improved barley varieties and production practices can contribute to the economic health of all sectors.

The value these findings to the Australian Pig Industry depends on their uptake by components of the industry.