Some farmers reported that primed wheat crops appeared darker green than non-primed crops. This suggests that priming-induced vigour may promote earlier or more complete capture of nitrogen from the soil.

Experiments are in progress to determine if this is a real effect and, if so, to clarify the physiological mechanisms involved. Some preliminary data from on-station trials in India showed that primed seed was able to utilise applied nitrogen more effectively than crops from non-primed seed over a wide range of application rates (Figure 3). Farmers who prime their wheat seeds can expect yield advantages (Table 2) or could perhaps save on fertilizer costs.

Chickpea

Large areas of India and Bangladesh are left fallow after the rainfed rice crop is harvested because, although there is still plenty of water stored deep in the soil, the surface dries out too quickly to allow another crop to germinate and establish. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has been promoting the use of chickpea (*Cicer arietinum*) in such an area in northwestern Bangladesh called the Barind. Scientists have found that even when modern, high yielding varieties are used, yields are low – a little over 1 tonne per hectare. However, on-farm trials during the 1998/99 and 1999/00 seasons, demonstrated that priming raised average yields by almost 50% in the first year and by

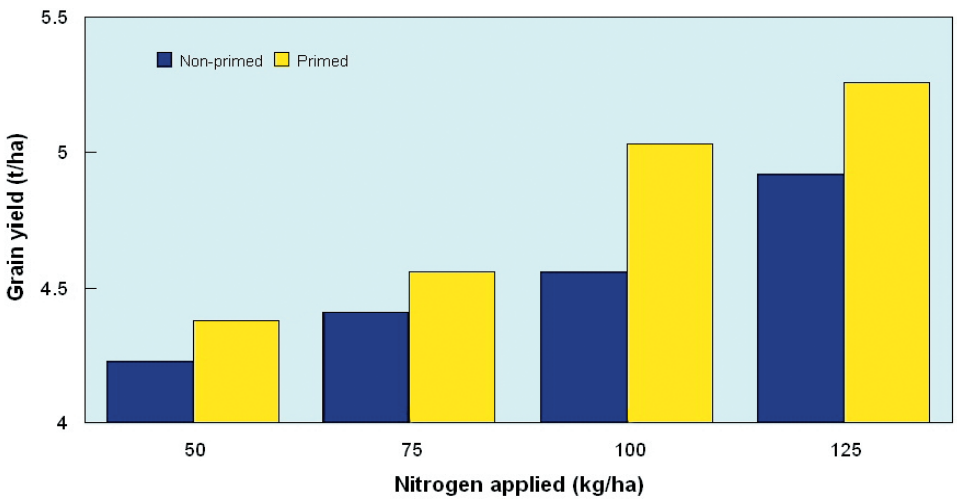

Figure 3. In late-sown wheat in Punjab, India, seed priming increased grain yield over a range of levels of nitrogen application.