Fig. S1. Growth of the endosperm relies completely on substrate supply from vegetative tissues. A method to label N dynamics by applying $^{15}$N at a rate calculated to supply about 10% worth of N uptake per day has previously been published (Sheehy et al. 2004a, 2004b, 2005). In those studies, the pattern of $^{15}$N recovery by all the plants is described by the following equation

$$y = a(1 - \exp(bx)), \quad (S1)$$

where $a$ represents the maximum recovery of $^{15}$N, and the initial slope of the curve is $ab$. The pattern of $^{15}$N recovery in the present study fits the same equation where $a = 60.32\%$ and $b = 0.10$.
h. Sheehy et al. (2004a, 2004b, 2005) consistently report a as 5–7 higher than here. When plants were labelled during grain-filling, about 4–8% of the label was found in the roots (Sheehy et al. 2004a). In the present study, $^{15}$N was only measured in the above-ground tissue, explaining the discrepancy. In addition, Sheehy et al. (2004a, 2004b) report values of $b$ 7–10 times lower than reported in the present study, with variability explained by the stage of the plant when pulsed, leading to a range of 10–14 days to reach maximum recovery, compared to just 12 h in this study. It is probable that $^{15}$N is much more available to roots when in solution culture than when in soil since dilution, exchange with other N and decay are avoided. A maximum recovery of about 60% is the same as found previously (Sheehy et al. 2004a, 2004b, 2005). We presume that the remaining $^{15}$N was lost to volatilisation along the low resistance pathway through aerenchyma cells.

References