Site specific nutrient management is precise use of influential site characteristics. A multilocational trial was conducted with three rice varieties and fertiliser schedules comprising farmer fertilisation (T1), recommended dose of fertiliser (T2) and ‘Nutrient Expert’ software derived fertiliser dose (T3), in three replications. 18 sites in Karaikal area in Puducherry UT were cultivated with varieties, ADT 46, BPT 5204 and CR 1009 in three, six and nine locations, respectively. The documented average yields of varieties were 6656, 6000 and 5300 kg ha\(^{-1}\), respectively.

Data on grain yield and its difference from average varietal yield were grouped variety wise. Generalised Linear Model (GLM) for T1 highlighted that grain yield was insignificant among varieties whereas yield was significant with R\(^2\) of 0.163 and 0.418, respectively. Grain yield differed significantly between BPT 5204 and CR 1009 in T2 and T3. Similarly, yield of CR 1009 with ADT 46 and BPT 5204 in T2 and T3 differed significantly. R\(^2\) values for GLM for T2 were 0.391 and 0.651, respectively for grain and yield while in T3, it was 0.364 and 0.640, respectively.

Analysis indicated that yield of BPT 5204 and CR 1009 differed significantly in all treatments. In addition, differences in yield of CR 1009 with ADT 46 and BPT 5204 were also significant in T2 and T3. As far as grain yield was concerned the difference between CR 1009 and BPT 5204 was significant in T2 and T3.

There was a definite increase in yield from farmer’s practice to more precise fertilisation using ‘Nutrient Expert’ with concurrent reduction in gap between realisable and realised yields. The difference between realisable and realised yield was found better in yield analysis than grain yield, which might help in understanding yield gap, a consequence of Gene x Environment x Management interactions.