Six field trials were conducted at Aligarh, western Uttar Pradesh (India), during the summer and winter season of (1992-94). Experiment 1 was a factorial randomised block design on summer moong var. T-44 conducted in 1992. 10 kg Ca/ha and 0.3% aqueous pyridoxine solution proved optimum for most of the growth and yield parameters giving 17.03% and 24.03% higher seed yield than the no-calcium and water-soaked controls respectively. Interaction effect was found significant only on N status at 15 and 30 DAS, P status at 30 DAS, K status at 30 and 45 DAS and Ca status at 15 and 30 DAS.

In Experiment 2 (1992-93), again a factorial randomised field trial, on mustard var. Varuna, out of four basal calcium doses tested, 40 kg Ca/ha and 0.02% aqueous pyridoxine solution proved optimum for most parameters studied. The improvement in yield by applying 40 kg Ca/ha was 25.35% and by the application of 0.02% pyridoxine, 24.65%. However, the interaction effect was non-significant, except on fresh and dry weight weight at 70 DAS.

Experiment 3 (1992-93) was also a factorial randomised block design field trial on wheat var. HD-2204. 20 kg Ca/ha and 0.04% aqueous pyridoxine solution proved optimum for most of the parameters studied. The increase in grain yield by applying 20 kg Ca/ha was 34.4% and by the
application of pyridoxine (PY2) 17.27% over no calcium and water-soaked controls, respectively. The interaction effects was not significant on the parameters. The factorial randomised field trials (Experiments 4, 5 and 6) were conducted on summer moong var. T-44 in 1993 and on mustard var. Varuna and wheat var. HD-2204 during 1993-94. These were designed on the basis of the findings of Experiments 1, 2 and 3 respectively. As the source of applied calcium in the earlier trials was gypsum (CaSO4·2H2O), that contains sulphur also, the observed beneficial effect could not be assigned un-equivocally to calcium alone. To remove this lacuna, it was decided to reschedule the basal doses of calcium for Experiments 4, 5 and 6 as under:

Experiment 4 (summer moong) : (1) control no calcium and sulphur (Ca0S0); (2) 8 kg S/ha as K2SO4 (Ca0S8) and (3) 10 kg Ca + 8 kg S/ha as gypsum (Ca10S8). Experiment 5 (mustard) : (1) control (Ca0S0), (2) 32 kg S/ha (Ca0S32) and (3) 48 kg S/ha (Ca0S48), both as (NH4)2SO4; (4) 40 kg Ca/ha + 32 kg S/ha (Ca40S32) and (5) 60 kg Ca/ha + 48 kg S/ha (Ca60S48); both as gypsum. Experiment 6 (wheat) : (1) control (Ca0S0); (2) 16 kg S/ha (Ca0S16); (3) 32 kg S/ha (Ca0S32), both as (NH4)2SO4; (4) 20 kg Ca/ha + 16 kg S/ha (Ca20S16) and (5) 40 kg Ca/ha + 32 kg S/ha (Ca40S32), both applied as gypsum. The basal doses and sources of N, P and K were retained. All agricultural practices and sampling techniques employed in Experiments 4, 5 and 6 as well as parameters studied were similar to those in Experiments 1, 2 and 3.
respectively. However, for pre-sowing seed treatment, only one control (water-soaked) was taken, as it had proved at par with the other (unsoaked) control in Experiments 1, 2 and 3.

The data of Experiments 4, 5 and 6 not only confirmed the findings of Experiments 1, 2 and 3 respectively but also revealed that the S in the applied gypsum had a role in increasing the various parameters studied. However, the role of Ca was pre-dominant. It may, therefore, be concluded that the application of Ca (as gypsum) could improve the yielding ability of these crops. This applies particularly to summer moong and mustard which show a substantial requirement for S.