

### CONCLUSION

SSC increased nitrogen fixation because SSC treatment created a low soil nitrogen environment which caused plant low nitrogen concentration and stimulated early and increased nodulation and prolonged nitrogen fixation activity.

The SJ5 Soybean variety in SSC without starter N positively contributed to soil nitrogen balance, but other treatments did not. This implies that if a soybean crop is to be incorporated in a cropping sequence, use of the SSC technique may provide a useful innovation towards the development of sustainable system provided a suitable variety is selected.

Starter N can relieve the period of plant nitrogen deficiency caused by SSC but it generally suppressed nodulation and nitrogen fixation. No positive yield response from starter nitrogen was found.

Genetic selection may be necessary to find varieties that respond to SSC in terms of both seed yield and nitrogen fixation. The SJ5 line was superior to NW1 in terms of nitrogen fixation, but neither variety had seed yield increased by SSC.