# Profile of Scientist

1. **Name of the Scientist :** Dr. Sheo Naik Sigh
2. **Personal Biodata :**
   a. **Position/Designation :** Principal Scientist (Agronomy) and Head, KVK
   b. **Contact Details:**
      i. **ICAR Email ID**: sheo.singh@icar.gov.in
      ii. **Personal Email ID:** snsingh117@gmail.com
      iii. **Mobile No. :** +919415152102, +918005383637
   c. **Joining date in**
      i. **ICAR: 14.12.2000**
      ii. **IISR: 01.08.2002**
   d. **Discipline and Specialization:**

| |
|---|
| **Agronomy**: Sugarcane based cropping systems research, integrated nutrients management system, planting techniques, plant population management, ratoon management, sugarcane seed production, transfer of technology etc. |

e. **Training/advance exposure in the area of work:**

| **Trainings attended (specify trainings attended only in the field of specialization outside the institute/ university)** | | | | |
|---|---|---|---|---|
| **Duration of training** | **Title of the training and name of the institution** | **Period** | | **For office use only** |
| | | **From (DD/MM/YYYY)** | **To (DD/MM/YYYY)** | |
| 10-20 days duration | (i) "Training course on *Rhizobium* Technology" conducted by the division of Microbiology, IARI, New Delhi.<br>(ii) "National Training Course on Potato Seed Production & True Potato Seed Technology" conducted by CPRIC, Modipuram | 23.11.1993<br><br>15.12.2000 | 03.12.1993<br><br>22.12.2000 | |

| | | | | |
|---|---|---|---|---|
| | (Meerut).<br>(iii) "Management Development Programme on Leadership Development (a-pre RMP Programme)" organized by ICAR-NAARM, Hyderabad. | 30.11.2015 | 11.12.2015 | |
| 21 to 89 days duration | (i) "Assessment and Modelling of Soil and Crop Growth parameters by Remote Sensing and GIS" conducted by the division of Agricultural Physics, IARI, New Delhi<br>(ii) "Weed Management Research in Major Crops and Cropping Systems" conducted by G. B. Pant University of Agriculture and Technology, Pantnagar (U.S. nagar), Uttarakhand.<br>(iii) "Adaptive Production Technologies for Sugarbeet under Indian Conditions" conducted by ICAR-IISR, Lucknow. | 09.07.1997<br>20.03.1999<br>01.06.2011 | 29.07.1997<br>09.04.1999<br>21.06.2011 | |
| 3 months or more | - | - | - | - |
| | - | - | - | - |

**f. Contribution to the scientific advancement :**

- In rice-sugarcane growing areas of the Indian sub-tropics and similar agro-climatic conditions in other parts where sugarcane planting in autumn season (October) is not practically feasible due to delayed harvesting of rice specially of scented varieties and wet field conditions, the autumn planting of sugarcane as relay inter crop with skipped rows transplanted rice in late September can effectively be adopted for reaping higher yields of cane (35.4%) and sugar (38.3%) as well as to improve the overall productivity and profitability (24.1%) of the system with the saving of energy (79.1%) over time and space.
- K application in plant cane increased ratoon cane and sugar yield by 8.82 and 9.77%, respectively over no K application (70.24 and 7.94 t/ha). The treatment comprising gap filling in plant cane at 45 DAP followed by application of K @ 80 kg/ha before one month of plant cane harvesting, gave the highest ratoon cane yield of 80.85 t/ha.

- The seed cane yield under poly-bag culture method was significantly higher to the tune of 9.80, 18.72 and 30.41% than that of conventional sett method of 3, 2 and 1-bud setts planting, respectively. The results further indicated that the rate of seed cane multiplication was about 35 times through poly-bag culture method as against 11, 9 and 8 times under conventional planting by 3, 2 and 1-bud setts, respectively.
- Zero-tillage technology provides an opportunity to provide similar or higher wheat yields and help in reducing costs of production and weeds population especially of *Phalaris minor* besides increasing water use efficiency. There is emerging evidence that zero-tillage is also gaining acceptance among farmers in the eastern part of the IGP and over the next few years the area under zero- tillage is expected to increase rapidly in Uttar Pradesh and neighboring states such as Bihar.

- The treatment combinations *viz.*, ridges dismantling + stubble shaving + sub-soiling along stubble rows + trash mulching @ 8 t /ha + earthing- up in June produced the highest cane yield of 76.48, 71.48 and 64.75 tonnes per ha which was 23, 27 and 29% more than that obtained under farmers' practice which was no cultural operation except trash burning in first, second and third ratoon crops, respectively. Moreover, the above combination increased net returns, benefit: cost ratio, economic efficiency, soil organic carbon content besides reducing weeds population and soil bulk density compared.The above practice may be worth adopting by sugarcane farmers as it sustains improved cane and sugar productivity, economic returns, soil organic carbon status besides reducing weeds population and bulk density of soil.
- **A patent** on "Technology for Priming Sugarcane Planting material, its Packaging, Transportation and Certification" by R. L. Yadav, **S. N. Singh**, R. S. Verma and T. K. Srivastava R. S. Verma was filed vide Patent File No. 1795/DL/2011 dated 24.6.2011. Accordingly, cane node technology of sugarcane planting was developed, and observed that the technology may be useful in reducing the seed cane quantity in sugarcane cultivation in addition to rapid germination of cane buds. The highest germination of 77.87% was recorded under single node cane segments as against 40.52 under 3-bud setts at 40 days after planting. Although the cane yield obtained under single node technology was higher to the tune of 11.14% than that of 3-bud setts planted crop, but the important thing in this case is the rapid multiplication of newly released varieties of sugarcane as we need 17-18 1/ha seed cane in single node method as against 60-80 q/ha under conventional method of planting. The technology is being used by the sugarcane farmers of India not only for enhancing cane yield but also for reducing the cost of sugarcane cultivation on seed cane but also for rapid multiplication of newly released varieties of sugarcane.

3. **Future Planning of research (in bullets):**

- Cane node technology for rapid multiplication of seed cane and enhanced yield with reduced cost.
- Plant population management for enhanced cane yield and quality.
- Relay inter cropping of wheat and rice for enhanced yield of cane and quality under wheat-sugarcane and rice-sugarcane cropping systems.

4. **Publications (Best five):**

| **Authors, Year of publication, Title of the paper** | **Journal Name, Volume and Page No.** | **NAAS Journal Id** | **NAAS Rating** |
|---|---|---|---|
| **(1)Singh, S. N**., Malik, J. P. S., Singh, A. K., Kumar, Rajesh, Sunderpal and Sharma, M. L. (2012). Cultural-practice packages and trash management effects on sugarcane ratoons under sub-tropical climatic conditions of India. | ***Journal of Agriculture Science, Cambridge,*** 150: 237-247. | J021 | 6.65 |
| **(2)Singh, S.N**., Yadav, R.L., Yadav, D.V. Singh, P.R. and Singh, I. (2010). Introducing autumn sugarcane as a relay intercrop in skipped row planted rice-potato cropping system for enhanced productivity and profitability in the Indian sub-tropics. | ***Experimental Agriculture***, **46**(4):519-530. | E125 | 7.08 |
| **(3)Singh, S.N.**, Yadav, R.L., Lal, M. Singh, A.K., Singh, G.K., Prakash, Om and Singh, V.K. (2011). Assessing feasibility of growing sugarcane through poly-bag culture system for rapid multiplication of seed cane in sub-tropical climate conditions of India. | ***Plant Production Science*** **(Crop Science Society of Japan), 14**(3):229-232. | P099 | 6.55 |
| **(4)Singh, S.N.**, Sah, A.K., Prakash, Om, Singh, R.K. and Singh, V.K. (2010). Assessing impact of zero-tilled wheat | ***Outlook on Agriculture,*** **39**(3):197-202. | O099 | 6.48 |

| | | | |
|---|---|---|---|
| growing in rice (*Oryza sativa*)-wheat (*Triticum aestivum*) cropping system of India's Central Uttar Pradesh in Indo-Gangetic Plain region. | | | |
| **(5)Singh, S. N**., A. K. Sah, R. K. Singh, V. K. Singh and S. S. Hasan, 2010. Diversification of Rice (*Oryza sativa* L.) –based crop sequences for higher production potential and economic returns in India's Central Uttar Pradesh. | ***Journal of Sustainable Agriculture***, **34**(2): 141-152. | J418 | 7.37 |

**5. Other relevant activities of Scientist:**

In addition to working as Principal Scientist (Agronomy), I am discharging my duties as Head, KVK, ICAR-IISR, Lucknow as per its mandated activities and also with a view to transfer of agricultural production technologies to the actual users and also addressing the constraints of farmers of Lucknow district.