

DR RAJINDER SINGH SAINI: Salient achievements: 1976 to 2026: 50 Years summary

Dr Raj Saini is an entrepreneur, horticulturalist and educator based in Auckland, New Zealand. He is the Director of Franklin Institute of Agri-Technology and Rupex Growtech Ltd, a production plant-nursery in the food bowl of the Auckland region.

Dr Saini has a PhD in Crop Sciences from the Punjab Agricultural University in India, and his research career has included attainments/ positions such as:

1973-1976 INDIA: Research Fellow (Crop Genetics) at Punjab Agric University (<https://pau.edu/>),
Fellowship granted by the Atomic Energy Commission of India:

- Conducted research on genetics and chromosome mapping of Pearl millet
- Participated in building a chromosomal translocation tester set involving all seven pairs of Chromosomes
- Isolated compensating trisomic lines which help in allocating genes to specific chromosome arms
- Genetic transmission of several characteristics was worked out and genetic linkage maps developed
- Based on this research I was awarded Post Doctoral Research fellowship by International Rice Research Institute (IRRI), Manila. (Could not join due to Dept, regulations)
- Publication no. 1-5

1976-1985: INDIA; National Research Planning Scientist (Food crops) at Indian Council of Agric. Research (ICAR), Union Ministry of Agriculture, Krishi Bhawan, New Delhi (<https://icar.org.in/en>) .
After clearing the All-India Agricultural Research Service Examination (1976) I joined ICAR and worked for about 9 years:

- Variety Testing and releae of Food Crops varieties in India: Coordinated nationwide testing of varieties and facilitated proposals to National /varieties Release committee. In specific, I organised nationwide testing, data analysis and release of rice variety IR 36 (developed by International Rice Research Institute, manila) in 1981. This variety acquired a wide coverage worldwide/India, and was used extensively in rice breeding programme and contributed significantly to rice production in India (Pub14)
- National varieties register collected and compiled information on then available varieties/hybrids of food crops which led to setting up of a National Varieties register in ministry of Agriculture (Pb 7-18)
- Millets research boost in India: Participated in developing IDRC assisted project on Minor millets to promote their cultivation, productivity and use in the country, (Pub 11)
- Research on Pulses in India: In view of the Govt emphasis for achieving self-sufficiency in Pulses (Grain legumes), I participated in setting up of a nationwide chain of research schemes/centres each with specific mandate to improve pulse production in each region. Summary results were published. (Pub 7, 8, 9, 12)

- Food crops production technology: In general, participated in research planning for improving foodgrain production in the country to meet the requirements of ever-increasing population in the country. (Pub 6-18)
- Several research schemes: I was member/facilitator of two scientific Panels on 'Plant genetics & breeding', and 'Plant physiology and biochemistry'. I introduced a paragraph in the final project reports 'Research results of practical value' and set up and implemented procedure to pass these on and integrate these results into national coordinated projects.
- Product testing and release: Organised trials, coordinated and prepared product release proposal for several biochemical products. An example: organised testing, submitted proposal and release of Mixtalols, a growth promoting substance to boost crop production which became very popular under trade name Paras (Hindustan Levers' product)
- Initiated a multilocation project on Biotechnology: I initiated a proposal to set up five Research schemes at different centres in India, which later led to setting up of biotechnology board in the country.

1985-1995: NIGERIA West Africa: Project/Farm Manager: commercial agriculture and agro-exports development and management:

- Mechanised crop production: Set up and managed large scale mechanised crop production projects on commercially viable basis (Pub no.29) with special emphasis on;
 - Integrated weed management through crop scheduling, cultivation practices, crop selection and right use of Agri-chemicals. (Pub 22 and 23)
 - Soil conservation using a strip /contour cultivation with natural vegetation belts to minimise soil erosion (Pub 19)
 - Analysed commercial viability of foodgrain production and concluded that there was a need to diversify crops to improve commercial viability. (Pub21)
- Mechanised Soyabean production: Assisted IITA in conducting research trials to identify location-specific soybean varieties and production technology and introduced mechanised cultivation of Soyabean in middle belt of Nigeria on commercial scale (Pub 20)
- Agri-based export development: Set up five procurements cum extension centres in Nigeria to advise growers, procure produce and export it overseas (Cashew, Sesame, Ginger, Gum arabica (Pub 25-26)
- Cashew plantation, processing and exports: Identified high potential and set up cashew plantation and later a cashew processing factory in Oyo state. Promoted integrated cashew projects as these offered high returns being fully export oriented, created large number of jobs for local people especially women being labour intensive, and stabilised the fragile sandy soils of middle belt (Pub 24, 27,28).
- Research Farm Management (1991), International Inst. of Tropical Agriculture, Nigeria: Participated in short training programme organised by IITA and US university aiming at improving research practices on Farms. (<https://iita.org/>)

1995–present: NEW ZEALAND: Rupex Growtech Ltd (1998–present): Founded and managed a wholesale plug-plant nursery that produces and supplies vegetable, native plant, and strawberry seedlings on a wholesale and contract basis: www.rupex.co.nz

- Liaising with the commercial growers about their yearly contractual requirements for supplying fresh produce and finalise yearly sowing- transplanting- harvesting schedule for meeting their supply chain commitments to organised sector (Fast food and Dept store Chins).
- Maintaining up-to-date information about high performing and sectors pacific varieties & hybrids suitable to specific growers needs (Growing situation, target market etc).
- Procuring right varieties of seed, facilitating their growing and supplying plug plants in adequate numbers, on time, right quality, healthy and sturdy seedlings over each week for the last 25 years, and continuing.
- Planning and implementing Infrastructural and resources needs of the business (Growing facilities, Water needs, skills need, management marketing structure, financial viability etc.)
- Identifying site-specific growing techniques, and structuring application of growing practices (Internally) mainly through standardization of:
 - Growing mixes and nutrition applications
 - Designing irrigation Systems and water application scheduling
 - Crop growth monitoring and taking steps to optimize their growth
 - Plant health Management using IPPM techniques
 - over Years, we have identified and perfected technology which a really works on the ground
- Managing compliance, health and safety, traceability, and biosecurity requirements through NZGAP, Growsafe & Chemical handler, staff technical certificates/Licences. Rupex has maintained NZ GAP certification for more than 20 years.
- As a result, not only Rupex market share has grown steadily, but also growers view it as a dependable and responsible supplier of Nursery plug plants, and feel confident in making yearly supply commitments with their clients (Fast food chains, Dept stores, Processing factories)
- In summary, I have facilitated Rupex to service first part of the Green-supply chain' successfully over 25 years and has been making tangible contribution to its sustainable production and quality control.

2016 To date: NEW ZEALAND: Franklin Institute of Agri-technology: Founded and managing horticulture training Institute, offering skill-based teaching/training in Horticulture production leading to Certificate L 4 and Diploma L5. www.fiat.ac.nz

- I identified the need to create provision of mid-level skilled staff for horticulture sector in NZ due to following reasons;
 - Attrition of current staff and managers

- Poor uptake by younger generation
- Changing technologies and their adoption
- Experienced professionals are retiring and best way to transfer their competency to next generation is through training young people.
- In house competence to train young people: I was a trainer and assessor for level 4 and level 4 Advanced horticulture for several years before starting the Institute. Under the aegis of primary ITO, I trained several staff members and acquired firsthand experience about the training needs of the young people.
- Since the start of the Institute in 2016, we have produced more than 300 students who are currently working and making contribution to horticultural sector of New Zealand.
- We are in the process of developing and offering Diploma in Horticulture Level 6 (Product Development) and Certificate in Dairy Farming to meet the skill needs of rural economy.
- Out teaching/training is hands on and teaches skills which are needed for day-to-day operations of the horticulture industry. As a result, our graduates are in very high demand, and we receive repeat requests from the employers.

Dissemination of technology: While managing the two businesses for over 25 years, we have identified the technology and practices which work well in the field, I have published the results which are of interest to growers in New Zealand and overseas (Pub 30-50)

Competencies: The career of 50 years of working in India, Nigeria and New Zealand includes Agri-business management, R&D planning, technology generation/transfer, crop & nursery production, teaching/ training, and marketing. My main interests have been in;

- Agric. Crops R & D: planning & coordination; Project formulation, implementation, and monitoring; technology transfer at national level especially in developing countries.
- Adaptive research: evaluate & identify new cultivars (varieties/hybrids) and develop location-specific growing technology suitable to local cropping and market needs.
- Agro-horticultural projects: setting up, restructuring & management of crop and nursery production/export-oriented projects on a commercially viable basis
- Horticulture training centres: Set- up and manage skill-based and work-integrated training in horticulture production to meet supply chain sensitivities.
- Collaborative projects: Vertical farming, technology transfer, innovative projects

PUBLICATIONS: Over fifty articles in national and international periodicals covering different Agro-ecological regions and growing practices in India, Africa, and New Zealand.

<https://scholar.google.com/citations?user=p6vVVlkAAAAJ&hl=en>

RAJ SAINI, PhD (Crop Sciences)

Director/Managing: Mob 027 278 2789

Office +64-9 236 37 38 | WhatsApp +64 27 278 2789

Email: rupexnz@outlook.com director@fiat.ac.nz

Franklin Institute of Agri-Technology www.fiat.ac.nz

Rupex Growtech Ltd www.rupex.co.nz

Pots of Joy www.potsofjoy.co.nz

760, Glenbrook Road, RD 4, Pukekohe, Auckland 2679, New Zealand

Dr Raj S. Saini – Publications to date

A. Vegetable Seeds, Transplants, Greenhouse Management and Technology Transfer (New Zealand, 1995–Present)

50. Saini, R.S. (2010). Greenhouse disease management. *The Grower*, November 2010.
49. Saini, R.S. (2010). Integrated pest management for greenhouse production. *African Farming*, September/October 2010.
48. Saini R.S. (2010) Breeding trends in vegetable brassicas: Seven key characteristics. *Syngenta Newsletter*: Jul 2020
47. Saini, R.S. (2008). Have competitive advantage through new varieties. *The Grower*, August 2008.
46. Saini, R.S. (2006). Watermelon production in New Zealand. *The Grower*, September 2006.
45. Saini, R.S. (2006). Stay on top of the crops: Use new varieties. *The Grower*, August 2006.
44. Saini, R.S. (2005). A practical guide to greenhouse disease management. *The Grower*, October 2005.
43. Saini, R.S. (2005). Role of resistant varieties in integrated pest management. *The Grower*, August 2005.
42. Saini, R.S. (2004). Identify your own varieties: A field guide for growers. *The Grower*, August 2004.
41. Saini, R.S. (2003). Know your hybrids: Advantages worth the cost. *The Grower*, August 2003.
40. Saini, R.S. (2002). Varietal diversity to combat problems of monoculture. *The Grower*, August 2002.
39. Saini, R.S. (2001). Breeding new varieties of vegetable brassicas. *The Grower*, August 2001.
38. Saini, R.S. (2000). Your guide to new varieties of vegetable crops. *The Grower*, August 2000.
37. Saini, R.S. (2000). Greenhouse management: A beginner's guide. *The Commercial Grower*, March 2000.
36. Saini, R.S. (1999). Cabbage varieties for year-round production in the Auckland region. *The Commercial Grower*, March 1999.
35. Saini, R.S. (1999). Chemical control of greenhouse diseases and insect pests. *African Farming*, January/February 1999.
34. Saini, R.S. (1998). Greenhouse management for disease and insect pest control. *African Farming*, September/October 1998.
33. Saini, R.S. (1998). Cauliflower varieties for year-round production in the Auckland region. *The Commercial Grower*, September 1998.
32. Saini, R.S. (1998). The importance of new varieties and hybrids. *The Commercial Grower*, July 1998.
31. Saini, R.S. (1998). A plug for cells: Vegetable plug seedlings—sensitivities and precautions. *The Commercial Grower*, February 1998.
30. Saini, R.S. (1997). Plug transplant technology for quality vegetable production. *African Farming*, May/June 1997.

‘**The Grower**’ published from Wellington, is an official publication of the Horticulture NZ : <https://www.hortnz.co.nz/news-events-and-media/magazines>

B. Commercial Crop Production and Agro-based Exports (Nigeria, 1985–1995)

29. Saini, R.S. (1998). Making mechanization work: A Sub-Saharan experience. *African Farming*, March/April 1998.
28. Saini, R.S. (1994). Cashing in on cashew: Production, processing and exports. *African Farming*, May/June 1994.
27. Saini, R.S. (1994). Cashew: A forex spinner for West African countries. *Business Magazine of Nigeria*, September 1994.
26. Saini, R.S. (1993). Expanding agro-exports in West Africa. Part I: General aspects. *African Farming*, September/October 1993.
25. Saini, R.S. (1993). Expanding agro exports in West Africa. Part II: Specific areas of development. *African Farming*, November/December 1993.
24. Saini, R.S. (1993). Export potential in the cashew nut industry. *The Nigerian Investor*, January–April 1993.
23. Saini, R.S. (1992). Wipe out weeds: Weed management in savanna areas. Part I: General management. *African Farming*, July/August 1992.
22. Saini, R.S. (1992). Wipe out weeds: Weed management in savanna areas. Part II: Chemical weed control. *African Farming*, September/October 1992.
21. Saini, R.S. (1991). Finding a way through the maize: Techno-commercial viability of mechanized crop production. *African Farming*, September/October 1991.
20. Saini, R.S. (1989). Experience of mechanized soybean production in the Middle Belt of Nigeria. Proceedings of the 8th Conference, Nigerian Soybean Association.
19. Saini, R.S. (1988). Soil conservation in large-scale farming. Proceedings of the Soil Science Society of Nigeria.

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C. National Agricultural Research Planning, Technology Transfer and Policy (India, 1976–1985)

18. D.S. Virk, G. Singh, G. Harinarayana & Saini, R.S. (1985). Stability analysis for comparing pearl millet hybrids in India. *SABRAO Journal*, 17(2), 129–133.
17. S. Lal & Saini, R.S. (1985). New technology for maize production. *Indian Farming*.
16. Saini, R.S. & Lal, S. (1984). Varietal improvement in food crops. *Indian Farming*.
15. Saini, R.S., R.K. Mehta & Lal, S. (1984). Research on upland rice. *Indian Farming*.
14. L.M. Jeswani & Saini, R.S. (1983). IR-36: A new variety of rice. *Indian Farming*.
13. Jeswani, L.M. & Saini, R.S. (1983). Highlights of barley research in India. *Indian Farming*.
12. Jeswani, L.M. & Saini, R.S. (1982). Overview of pulse production in India: Constraints and opportunities. Oxford & IBH Publishing. 12
11. Saini, R.S. & Mehta, R.K. (1982). Advances in research on millets. *Indian Farming*.
10. Saini, R.S. (1981). Towards higher rice production. *Indian Farming*.
9. Jeswani, L.M. & Saini, R.S. (1981). Pulses: Striving for adequacy. *Pulses Newsletter*.
8. Jeswani, L.M. & Saini, R.S. (1981). Summer moong (greengram) technology. *Indian Farming*.
7. Jeswani, L.M. & Saini, R.S. (1981). Highlights of research on pulses. *Indian Farming*.
6. Saini, R.S. (1978). Manures and fertilizers: A book review. *Indian Farming*.

'Indian Farming' is an official publication of Indian Council Of Agriculture Research, New Delhi <https://epubs.icar.org.in/index.php/IndFarm>

D. Basic Research in Genetics and Plant Breeding (India, 1973–1976)

5. J.L. Minocha, J.S. Sidhu & Saini, R.S. (1983). Mapping of a pearl millet chromosome through chromosomal interchanges. International Congress of Genetics.
4. Minocha, J.L., D.S. Brar, Saini, R.S., D.S. Multani & Sidhu, J.S. (1982). A translocation tester set in pearl millet. *Theoretical and Applied Genetics*, 62, 31–33.
3. Saini, R.S. & Minocha, J.L. (1981). A compensating trisomic in pearl millet. *Journal of Heredity*, 72, 354–355.
2. Minocha, J.L., Brar, D.S. & Saini, R.S. (1980). Chromosomal interchanges in pearl millet. *Trends in Genetical Research in Pennisetums*.
1. Minocha, J.L., Saini, R.S. & Brar, D.S. (1979). Aneuploids from chromosomal interchanges in pearl millet. *Canadian Journal of Genetics and Cytology*, 21(4), 571.

WORK BASED PRESS COVERAGE

- Rupex Growtech commits itself to the Vege-industry. The Grower Oct 2007
- Cell Tech sells its vegetable transplant division to Rupex. The Grower 2006
- A specialist Plug transplant nursery: Rupex Growtech Ltd. India News link(NZ)Feb00
- Melagro Exports Ltd. A company profile. African Farming (London) May-Jun,94
- Soil/water conservation/Out growers' scheme. African Farming:Sep-Oct,1989
- The real farmers' farm. The Herald (Nigeria) Jan 30,1989
- Nigerian farming project goes for growth. African Farming (London):Jan-Feb'89
- Farm boss(R.S.Saini) praises Kwara state Govt. The Herald(Nigeria)Dec30,98
- Federal Govt. Agric policy lauded (R.S.Saini): The Herald (Nigeria) Dec2,1988
- Research on upland rice. United News of India: Agric Service : IX (39) 887-891
- Highlights of research on pulses in India (L.M.Jeswani & R.S.Saini)
State Bank of Mysore Farm News (Banglore, India) VI (8) 13-20
- Increasing pulses production in India (L.M.Jeswani & R.S.Saini)
United News Of India: Agric. Service(Delhi) :VIII (9) 173-76
- Pulses: constraints and opportunities in India. (L.M.Jeswani & R.S.Saini)
The Economic Times (Delhi) Oct9,1982

GEOGRAPHICAL ANALYSIS OF THE PUBLICATIONS

<u>Agro-climate</u>	<u>Target region</u>	<u>Subject matter</u>	<u>Number</u>
General	Basic Research	Crop genetics & breeding.....	5
Tropical /Sub Trop.	India	National R&D planning, research Management, technology transfer	13
Tropical	Africa (Sub-Sahara)	Mechanized/commercial farming ...	4
		Integrated weed management.....	2
		Agro based export development.....	5
Temperate	New Zealand		
		Vegetable varieties/plug technology/Greenhouse/Disease Management	21
TOTAL PUBLICATIONS:			50