

Dr Dhiraj SINGH

CURRICULUM VITAE



Director

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1. Born on 25th December 1954 in Uttar Pradesh, India

2. Education

- B.Sc. Hons Agriculture from Meerut University Meerut in 1976
- M.Sc. (AG) Botany from Meerut University Meerut in 1978
- Ph.D. (Plant Breeding) from Haryana Agricultural University Hisar in 1983

3. Professional Profile

A) Positions held

- Scientist, Sr. Scientist, Professor and Head Division of Plant Breeding & Genetics at the Chaudhary Charan Singh Haryana Agricultural University, Hisar (01.01.1983 -18-9-2013)
- Director, ICAR-Directorate of Rapeseed Mustard Research (DRMR), Sear, Bharatpur (18-9-2013-Continue)

B) Honorary Positions in Committees/ Organisations/Societies

- Vice-President Society for Rapeseed-Mustard Research, (DRMR, Bharatpur (2011-continue)
- Secretary, National Society of Crop Improvement, Hisar, Haryana (2011)
- Member, Selection Committee, Swami Keshwanand Rajasthan Agricultural University, Bikaner, Rajasthan (2014-continue)
- Member, Board of Management, Sri Karan Narendra Agriculture University, Jobner, Jaipur, Rajasthan (2014-continue)

C) Member/Positions in International Committees/ Organisations/Societies

- International Consultative Group for Research on Rapeseed (Groupe Consultatif International de Recherche sur le Colza) (2011-Continue)

4. Recognition by Scientific Academies

- Fellow of the Society for Rapeseed-Mustard Research (FSRMR.) (2012)
- Dr. P.R. Kumar Outstanding Brassica Scientist Award 2014 by Society for Rapeseed-Mustard Research, Bharatpur (2014)
- Rajshri Tondan Rajbhasha Purskar 2012-13 (Award for Institute) by Indian Council of Agricultural Research, New Delhi (2014)
- Received Certificate of Merit, Certificate of honor and Poster presentation awards from different institution and professional societies.

4. Major Scientific Contributions

A) Oilseed Crops

As oilseed researcher development varieties identified/released and germplasm registered

- Nine varieties of oilseed crops were developed and notified. (Rajat, RH9304; RH9801; RH 119; RB 50; RH 406; RH 749; YSH 401 (HT2 of Sesame)
- Eight germplasm lines were registered with NBPGR, New Delhi.
- Maintained genetic purity of released varieties as Nucleus seed for the production of breeder seed, Foundation seed and certified seed of oilseed crops which have the nature of self pollination, cross pollination and often cross pollinated crops for more than two decade.
- Single spore culture of *Alternaria brassicae* isolates of entire Haryana & Jammu purified and the most virulent cultures deposited at NBIM, Mau.
- Demonstrated the different varieties and technology for more than two decades.
- Yellow Sarson Variety **YSH 0401** has been released and notified at national level for all the zones of the country.
- **RH 0406** has been released and notified at national level for timely sown rainfed conditions of Haryana, Punjab, Delhi and parts of Rajasthan. This variety possessed higher seed yield than check varieties under irrigated conditions also in the station trials on the basis of 5 years.
- Indian mustard variety **RH 0305** has been identified by University Varietal Release Committee for late sown conditions for Haryana State during 2010.
- Indian mustard Variety **RH 0749** identified for Zone II irrigated condition the notification proposal has been submitted. Cow Pea variety HCP 46 has been recommended for release by the State seed sub committee for cultivation in Haryana state
- Indian mustard variety **RH 0119** having high yield, bold seeds, non shattering habit and erect plant type with long siliquae having increased number of seeds and thermo tolerance has been recommended by the State Seed Sub Committee for Agricultural crops in the meeting held on 19/5/2009 to Central seed Sub Committee for release and notification.

B) Crops Other than Oilseed

As Head of the Department involved in development varieties identified/released and germplasm registered during the period of August 2008-12

- Bajra Hybrid HHB 197(resistant to downy mildew and smut diseases and has longbristles), **HHB 223 (MH 1468)** for cultivation in zone A; **HHB 234**(high grain and fodder yield with resistance to downy mildew disease) , **HHB 216 (MH 1421)** for zone A-1, of the country.

- Maize variety **HM 11** (**HKH 1237**) for cultivation in the states of Punjab, haryana, uttarakhand, UP, Bihar, Jharkhand, Chattisgarh, Gujarat, Orissa, Assam, Andhra Pradesh, Maharashtra, Karnataka and tamil nadu for rabi season having late maturity of 110 -160 days and average yield of 6550 Kgs/ha.
- Four varieties including one of **Oat: OS 346** (High green fodder , per day productivity, dry matter yield, resistant to leaf blight disease & Better nutritional quality, Bold seeded and good seed yielder), three of **Guar: HG 884** (High yield of seed (20-22 q/ha), gum percentage (29-30 %) and gum viscosity (2600-2800 m pause/sec) , Early maturity (85-100 days) , resistant to lodging, Bold seeded, Tolerant to Bacterial Blight, Alternaria Blight and Root Rot) and **HG 2-20** (High yield of seed (21-23 q/ha), gum percentage (30-31 %) , gum viscosity (2700-2900 m pause/sec), Early maturity (85-100 days), Bold seeded, Moderately resistant to Bacterial Blight, Alternaria Blight and Root Rot) and **HG 870** for cultivation in Haryana.
- Three Varieties Durum Wheat **WHD 943** notified for cultivation under timely sown irrigated conditions of North Western Plain Zone of India consisting of Punjab, Haryana, Delhi, Rajasthan (except Kota & Udaipur divisions) and Western UP (except Jhansi division), parts of J&K (Jammu & Kathua distt.) and parts of HP (Una distt. and Paonta valley) and Uttaranchal (Tarai region). Bread **WH 1080** for cultivation under early sown rainfed conditions of North Western Plain Zone of India consisting of Punjab, Haryana, Delhi, Rajasthan (except Kota & Udaipur divisions) and Western UP (except Jhansi division), parts of J&K (Jammu & Kathua distt.) and parts of HP (Una distt. and Paonta valley) and Uttaranchal (Tarai region). **WH1025** for cultivation under rain fed conditions in Haryana State
- Barley variety **BH 902** for cultivation in NWPZ under irrigated conditions
- Cowpea variety **Hisar Cowpea 46** , Pigeonpea Genotype **H 03-41**, **HK 4**(bold seeded, widely adapted, high yielder and resistance to diseases especially *Fusarium* wilt) for cultivation in Haryana State. Mung variety **MH 421** and Urd variety **UH 1** have been released and notified.
- Rice variety **HKR 127** moderately resistant to false smut and having easy threshing release and notified.
- Four Varieties of Cotton, Desi cotton variety **HD 432** (high yielder , lodging resistant, tolerant to fusarium wilt and having less shedding of kapas), American Cotton variety **H 1236** (superior fibre quality coupled with tolerance to Cotton leaf curl virus disease and suitable for early planting), American Cotton variety **H 1098** (big boll size, normal maturity duration, high Ginning Out Turn (%) with resistance to Cotton leaf curl virus disease) and American cotton variety **H 1300** recommended by the State Seed Sub Committee for Agricultural crops in the meeting held on 19/5/2009 to Central Sub Committee for release and notification
- The sesame variety **HT 9713** topped in seed yield in Zone I and the proposal of the same has been submitted for notification.

C) Registration of varieties with PPV&FR:

- Registration of forage sorghum variety **HC 308** was recommended by EVRC and registration of forage sorghum variety **HJ 513** is still under examination.
- Cases of Hybrids of Bajra **HHB 94**, **HHB 117**, **HHB 146**, **HHB 67** (Improved) and **HHB 197** have been submitted for registration.

- Rapeseed mustard varieties RB 50, RH 119, RH 9304, RH 9801, RH 0406 & YSH 0401 have registered with PPV&FR.

D) Research Administration and Projects Handled

- Successfully handled International/National/State projects with important findings of basic and applied nature
- Provided successful integrated leadership to improve the teaching which resulted in 12 NET passed during 2008-2012.
- The Department of Genetics and Plant Breeding is one of the biggest department among all the SAU's with the strength of 65 scientists and about 200 supporting staff. Therefore, the leadership to all the field crops research, teaching and extension as Prof. & Head Genetics & Plant Breeding was provided for four years as per the tenure according to university rules.
- It resulted in the improvement in teaching, development and release of number of varieties & registration of germplasm in different field crops, farm facilities with mechanization and dissemination of improved technology during (August 2008 to September 2012).
- As director of national reputed institute, ICAR-Directorate of Rapeseed-Mustard Research (DRMR), Bharatpur monitoring 23 in house and 6 externally funded projects. DRMR has the 51 staff includes (24 Scientists, 13 technical, 9 administration and 4 supporting staff). Infrastructure facilities developed for effective research and extensions.
- Organized 20 training programmes for farmers and extension personals during September 2013- March 2014 includes 7 (3 days), 8 (5 days) and one each of 4 days, 6 days, 7 days, 8 days and 10 days.

5. Publications

A) Research Papers:

1. Ibandalin Mowlong, Kumar Sujith M.S. and Singh Dhiraj. 2014. Furan fatty acids: their role in Plant systems, *Phytochemistry Reviews*. DOI 10.1007/s11101-014-388-7
2. Singh, VV, Singh Maharaj, Chauhan, JS, Singh Dhiraj and Meena, ML. 2014. Comparison of half-sib and full-sib progeny selection methods in Indian mustard (*Brassica juncea* L.) under rainfed conditions. *SABRAO Journal of Breeding and Genetics* 46 (1): 81-88.
3. Tarun Kumar and Singh Dhiraj. 2014. Effective selection criteria to determine moisture stress tolerance in Indian mustard (*Brassica juncea*). *Journal of Oilseed Brassica*, 5 (1): 13-18.
4. Meena PD, Lijo Thomas and Singh Dhiraj 2014. Assessment of yield losses in *Brassica juncea* due to downy mildew (*Hyaloperonospora brassicae*). *Journal of Oilseed Brassica*, 5(1) : 73-77.
5. Saharan, G.S., Verma, P.R., Meena, P.D., Borhan, M. Hossein and **Singh, D.** 2014. Analysis of white rust research progress through bibliography. *J Oilseeds Brassica* 5 (Special): 42-115.

6. Barbetti, M.J.; Banga, S.K.; Fu, T.D.; Li, Y.C.; **Singh, D.**; Liu, S.Y.; Ge, X.T.; Banga, S.S. 2013. Comparative genotype reactions to *Sclerotinia sclerotiorum* within breeding populations of *Brassica napus* and *B. juncea* from India and China. *Euphytica* DOI 10.1007/s10681-13-1049-1.
7. Singh, Amit, Avtar, Ram, **Singh, D.**, Sangwan, O. and Balyan, P. 2013. Genetic variability, character association and path analysis for seed yield and component traits under two environments in Indian mustard. *J Oilseeds Brassica*, **4(1)**: 43-48.
8. Singh, Amit, Avtar, Ram, **Singh, Dhiraj**, Sangwan, O, Thakral, N.K., Malik, V.S., Goyat, Binesh and Dalal, Usha. 2013. Combining ability analysis for seed yield and component traits in Indian mustard [*Brassica juncea* (L.) Czern & Coss.]. *Res Plant Biol*, **3(2)**:26-31.
9. Lodhi, Balvir, Thakral, N.K., **Singh, D.**, Avtar, Ram and Raj Bahadur. 2013. Genetic diversity analysis in Indian mustard (*Brassica juncea*). *J Oilseeds Brassica*, **4(2)**: 57-60.
10. Singh, Amit, Avtar, Ram, **Singh, D.**, Sangwan, O. and Numari, Nisha. 2013. Genetic divergence for seed yield and component traits in Indian mustard [*Brassica juncea* (L.) Czern & Coss.]. *Indian J Plant Sci*, **2(3)**:48-51.
11. Singh, Rajender, **Singh, D.** and Singh, Harbinder. 2013. Variability in *Alternaria Brassicae* incitant of *Alternaria Blight* of Oilseed *Brassica*. *Res. on Crops* **14** (4): 1082-1088.
12. Yadav, A. K., **Singh, D.** and Arya, R.K. 2013. Morphological characterization of Indian mustard (*Brassica juncea*) genotypes and their application for DUS testing. *Indian J Agril Sci*. **83** (12): 1305-16.
13. Rani Teena; Yadav, R.C, Yadav, Neelam; Rani, Asha; and **Singh, D.** 2013. Geneteed transformation in oils brassicas- A review. *Indian J Agril Sci* **83** (4): 367-373
14. Avtar, R.; **Singh, D.**; Takral, N.K.; Singh, Amit; Sangwan, O.; Rani, Babita and Kumari, Nisha. 2013. Multivariate analysis for evaluation and classification of toria germplasm accessions. *Res. on Crops* 13 (4) In press
15. Singh, Amit, Avtar, Ram, **Singh, Dhiraj**, Sangwan, O. and Numari, Nisha. 2013. Genetic divergence for seed yield and component traits in Indian mustard [*Brassica juncea* (L.) Czern & Coss.]. *Indian J Plant Sci* **2(3)**: 48-51.
16. Yadav, Kumar, Ashok; **Singh, D.** and Arya, Rajesh Kumar. 2013. Morphological Characterization of Indian mustard (*Brassica juncea*) genotypes and their application for DUS testing. *Indian J. Agril Sci* **83** (12) : 1305-1316
17. Nanjundan, J., Thakral, N.K., **Singh, D.** and Mohanraj K. 2012. Sulphur assimilation and partitioning in Indian mustard [*Brassica juncea* (L.) Czern & Coss.]. *Indian J Plant Physiol* 17 (1): 65-70.
18. **Singh Dhiraj**, Thakral, N.K, Rathi, A.S. Chhabra, M.L., Singh, S.P., Yadav, R.C., Sheoran, P., Avtar, Ram and Chander, Subhash. 2012. Oilseed Brassica Research: Present Scenario and future strategies. *J Oilseed Brassica*, **3(2)**: 111-112.
19. Avtar, Ram, Sheoran, R.K., Yadav R., Singh Amit; **Singh D.** and Rani Babita. 2012. Evaluation and classification of exotic collections of Sunflower using principal factor and Cluster analysis. *Res. on Crops*. **13** (3): 1109-1114.
20. Goyat Binesh, **Singh, D.** Autar Ram and Singh Amit. 2012. Estimation of selection parameters in elite gene pool of Indian mustard. *Res. on Crops* **13** (3): 1098-1101.
21. Goyat Binesh, **Singh, D.** Autar Ram and Singh Amit. 2012. Genetic divergence in elite gene pool of Indian mustard. *Res. on Crops* **13** (3): 1102-1104.

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23. Nanjundan, Joghee; Thakral, N.K.; **Singh, D** and Kumar Ramesh. 2011. Effect of sulphur on oil content and fatty acids profile in 36 triple test cross families of Indian mustard (*Brassica juncea*). *Indian J Agril Sci* **81**: 878-880.
24. Singh, R.; **Singh, D.**; Salisbury, P. and Barbetti, M.J. 2010. Field evaluation of indigenous and exotic *Brassica juncea* genotypes against *Alternaria* blight, white rust, downy mildew and powdery mildew diseases in India. *Indian J Agric Sci* **80** (2): 155-159.
25. Singh, R.; **Singh, D.**, Salisbury, P. and Barbetti, M.J. 2010. Field evaluation of Indian and exotic oilseed *Brassica napus* and *B. juncea* germplasm against *Sclerotinia* stem rot. *Indian J Agril Sci* **80** (12): 1067–71.
26. **Singh, D.**; Arya, Kumar Rajesh; Chandra, N; Niwas, Ram and Salisbury, P. 2010. Genetic Diversity studies in relation to seed yield and its component traits in Indian mustard (*Brassica juncea* (L.) Czern & Coss.]. *J Oilseed Brassica* **1**(1): 19-22.
27. Kumar, R.; Thakral, N.K.; **Singh, D.** and Behl, R.K. 2009. Gene effects for phenol content in Indian mustard [*Brassica juncea* (L.) Czern & Coss.]. *Indian J Genet.* **69** (2): 127-131.
28. **Singh, D.**; Singh, R.; Singh, H.; Yadav, R.C.; Yadav, N.; Barbetti, M and Salisbury, P. 2009. Cultural and Morphological variability in *Alternaria brassicae* isolates of Indian mustard [*Brassica juncea* (L.) Czern & Coss.]. *J Oilseeds Res* **26**(2):134-137.
29. Li, C.X., Wratte, N., Salisbury, P., Burton, W. Potter, T., Sivasithamparam, K. Banga, S., **Singh, D.**, Liu, S., FU, T., and Barbetti, M.J. 2008. Relative responses of *Brassica napus* and *Brassica juncea* germplasm from Australia, China and India to the Australian races of blackleg fungus (*Leptosphaeria maculans*). *Ausn Plant Pathol* 37. 162-170.
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31. Nanjundan, Joghee; Thakral, M. K.; **Singh, D**; Dhawan, K and Chandra. 2008. Fatty acid Profile and omega fatty acid ratio in 36 triple test cross families of Indian mustard (*Brassica juncea* L. Czern & Coss.) under normal and late sown conditions. *Natnl J Plant Improv* **10** (1-2):83-87.
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33. Singh, R, **Singh, D.** Hua, Li.; Sivasithamparam; Yadav, N.R.; Salisbury, P. and Barbetti, M.J. 2008. Management of *Sclerotinia* rot of Oilseed Brassica- a focus on India. *Brassica* **10**: 1-27.

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38. Shiv Rattan; Chaudhary, B.D. and **Singh, D.** 2005. Selection criteria for drought tolerance/resistance and their relationship with biomass chracters, seed yield and its components in Indian mustard. *Ann. Agri Bio Res* **10 (2)**: 135-138.
39. Shiv Rattan, Chaudhary, B.D. and **Singh, D.** 2005. Effect of growth stages and environment on plant height and root depth in Indian mustard (*Brassica juncea* L. Czern. & Coss.). *Ann. Agri. Bio. Res* **10 (2)**: 139-142.
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