

Designation:

Principal Scientist

Division/Section:

Division of Vegetable Crops

Specialisation:

Genetics and Plant Breeding

Qualification:

MSc (Ag), Ph.D

Dr. M. V. Dhananjaya, Principal Scientist at ICAR-IIHR, Bengaluru has 25 years of research, teaching and extension experience. Presently, serving as Chief Executive Officer, BESST-HORT, NIDHI-TBI, Government of India. Involved in crop improvement of horticulture crops and handled 21 in-house and 15 externally funded projects as PI and co-PI. He has mobilised R&D grants to the tune of 28.69 crore and created R&D infrastructure worth Rs.10 crore. Through licensing of varieties he has mobilized IP-revenue to the tune of Rs. 14 lakh. As the Nodal Officer and Member Secretary organized two National Horticulture Fairs (NHF) in 2020, and 2021. In 2021 during COVID-19 pandemic NHF was organized in hybrid mode, attracting a remarkable total footfall of 57.2 lakh attendees, comprising 56,243 lakh physical participants and 56.7 lakh virtual participants and stakeholders from 12 countries who participated virtually.

Eighteen varieties developed by him in 5 different horticulture crops have found place in recently published PoP in the year 2022 of University of Horticultural Sciences (UHS), Bagalkot. He has five CVRC and one SVRC notified varieties in floriculture crops. He has to his credit three PPVFRA protected varieties one in Carnation and two in Rose and has filed four applications in bottle gourd for protecting F1 hybrid "Arka Ganga" and its parents and a GSB resistant variety "Arka Shreyas" with PPVFRA, New Delhi. As PI and Co-PI developed and registered five unique genetic stocks in vegetables and fifteen in flower crops with ICAR-NBPGR, New Delhi for economically important traits. He has developed DUS guidelines for carnation and crossandra. He has associated with seed production as Officer In-Charge (Seed Unit) in the year 2023-24 and as member of RFS (FVF) during 2020-21 & 2022-23.

Recognized as post graduate faculty of ICAR-IARI, New Delhi, UHS, Bagalkot, UAS, Bengaluru and SKITSHU, Telangana and has guided 4 M.Sc. and 4 Ph.D students in horticulture. He has served as member of Advisory Committee of 21 PhD students of IARI, New Delhi. He has offered Four PG courses to IARI and One to UHS, Bagalkot students. He has more than 100 publications to his credit.

Varieties/Hybrids Developed:**a) Gummy stem blight resistant varieties**

- **Arka Shreyas** is resistant to Gummy stem blight (GSB) with yield potential of 48 t/ha. Fruits are green and club shape. This variety will be ready to first picking by 60 days. It is an open pollinated variety.



- **Arka Nutan** is moderately resistant to gummy stem blight with a yield potential of 46 t/ha. Fruits are light green medium cylindrical. This variety will be ready to first picking by 56 days.



- **F₁ hybrid Arka Ganga** is resistant to gummy stem blight with a yield potential of 58 t/ha. Fruits are green and oblong / oval. This hybrid will be ready to first picking by 56 days after planting.



b) Technologies/ breeding lines/ varieties listed for commercialization

- **GSB resistant line BG-114-1** (Short cylindrical) can be used as donor parent in hybridization to develop resistant varieties. It can be used as rootstock for other cucurbits since it is a soil borne. It is also cost effective reducing 50-60% of dependence on pesticides. It has been registered under NBPGR (INGR21145 & IC635410).



- **GSB resistant line BG-114-3** (Medium cylindrical) can be used as donor parent in hybridization to develop resistant varieties. It can be used as rootstock for other cucurbits since it is a soil borne. It is also cost effective reducing 50-60% of dependence on pesticides. . It has been registered under NBPGR (INGR21146 & IC0635411).



- **GSB resistant line BG-95 (Round)** can be used as donor parent in hybridization to develop resistant varieties. It can be used as rootstock for other cucurbits since it is a soil borne. It is also cost effective reducing 50-60% of dependence on pesticides. It has been registered under NBPGR (IC0635412 & INGR21148).



- **GSB resistant variety Arka Shreyas** (club shape) first picking by 60 days, yield potential of 48 t/ha. It is an open pollinated variety.
- **Powdery mildew resistant line BG-6-3** is resistant to Powdery mildew (*Golovinomyces cichoracearum*). It takes an average of 43.15 days for first female flower appearance with a yield potential of 31.81 t/ha. Fruits are green, medium elongated straight with a length of 34.75 cm and circumference of 27.00 cm.
- **Powdery mildew resistant line BG-8-1** is resistant to Powdery mildew. It takes an average of 54.18 days for first female flower appearance at 17.33 node. Fruits are elongated straight shape with green stripes. It also produces 4.88 number of fruits per plant with a marketable yield of 32.20 t/ha.

Patents/ PPVFRA protections:

Crop varieties registered with PPV & FRA

Crop varieties	PI/Co-PI	Patent/ Registration No. & year
Bottle Gourd- Arka Shreyas	PI	Application Filed
Bottle Gourd- Arka Ganga	PI	Application Filed
Carnation - Arka Flame	Co-PI	REG/2020/284
Rose - Arka Swadesh	Co-PI	REG/2016/354
Rose - Arka Ivory	Co-PI	REG/2017/1770

List of genotypes registered with NBPGR/ICAR, New Delhi

Crop	Germplasm/ Genetic Stock Registered	IC No.	Registration No.	Characters	Year of Registration
Bottle Gourd	BG-114-1	IC635410	INGR21145	Gummy stem blight resistance	2021
	BG-114-3	IC0635411	INGR21146	Gummy stem blight resistance	2021
	BG-95	IC0635412	INGR21148	Gummy stem blight resistance	2021
	BG-6-3	IC0635413	INGR21147	Powdery mildew resistance	2021
	BG-8-1	IC0635414	INGR21215	Powdery mildew resistance	2021
Rose	IIHRP-13	IC556921	INGR10072	Thrips tolerance and Fragrance	2010
	IIHRP-2-28-F	IC0584135	INGR10070	Shining Foliage, unique biclour	2010
	IIHRP-3-18-2	IC0584136	INGR10071	Less thorns, straight stalk of cut flower quality, pointed bud light pink flowers with high centre.	2010
	IIHRRs-1	IC567489	INGR09049	Powdery mildew and black spot resistance	2009
	IIHRRs-2	IC567490	INGR09050	Powdery mildew and black spot resistance	2009
Gladiolus	IIHRG-9	IC0584126	INGR10068	Floret colour	2010

	IIHRG-12	IC621474	INGR17089	Floret colour	2017
	IIHRG-6	IC621473	INGR17088	Floret colour	2017
Gerbera	IIHR 3-34	IC621471	INGR 17090	Flower head colour	2017
	IIHR 8-45	IC621472	INGR 17091	Flower head colour	2017
Chrysanthemum	IIR2-47	IC623437	INGR17059	Flower head colour	2017
	IIHR5-23	IC623438	INGR 17060	Flower head colour	2017
Carnation	IHRC-1	IC 548347	INGR08065	Mini spray carnation suitable for open field	2008
	IIHRIS-1(A-5)	ICS61244	INGR08102	Micro carnation	2008
	IHRIS-2 (11-13)	IC561245	INGR08103	Micro carnation	2008

Publications:

Sl. No.	Authors	NAAS Journal ID/ Rating (as per 2023 list)
1	Bhargav, V., Kumar, R., Shivashankara, K. S., Rao, T. M., Dhananjaya, M. V. , Sane, A., Bharathi, T. U., Venugopalan, R. and Roy, T. K. 2018. Diversity of flavonoids profile in China aster [<i>Callistehpus chinensis</i> (L.) Nees.] genotypes. <i>Indust. Crop Prod.</i> , 111: 513-519.	I117/12.45
2	Ashish Kaushal, A. T. Sadashiva, M. Krishna Reddy, E. Sreenivasa Rao, T. H. Singh, S. Sriram, Dhananjaya, M. V. , R. Venugopalan and K. V. Ravishankar. 2020. Assessment of the effectiveness of Ty genes in tomato against tomato leaf curl Bangalore virus. <i>Plant Pathol.</i> 68(9): 1777-1778.	P118/8.77
3	Manisha, K. Padmini, R. Umamaheswari, D. C. Lakshmana Reddy, M. V. Dhananjaya and V. Keshava Rao. 2023. Evaluation of resistant line of tropical carrot to root-knot nematode <i>Meloidogyne incognita</i> using conventional method- and molecular markers. <i>Eur. J. Plant Pathol.</i> (Accepted for publication).	E153/8.22
3	Manjunatha gowda, D. C., Pitchaimuthu, M., Hiremata, V., Sathisha, G. C., Soni, S., Dhananjaya, M. V. , D. C. Lakshmana Reddy. 2023. Horny gourd (<i>Cucumis metuliferus</i> L.): a hidden vegetable boon for human nutrition. <i>Genet Resour Crop Evol.</i> 70:1903–1911	G015/7.88
4	Tejaswini and Dhananjaya, M. V. 2006. Genetic diversity and parental selection for hybridization in rose (<i>Rosa hybrida</i>). <i>Indian. J. Genet. Plant. Breed.</i> 66 (4): 329-331.	I070/7.34
5	Kalaiyarasi, A., Dhananjaya, M. V. , Nair, S. A., Kumar, R., Yogeesha, H. S., Munikrishnappa, P. M., Devappa, V. and Pavithra, S. 2018. Studies on floral morphology in different genotypes of <i>Jasminum sambac</i> . <i>Indian J. Agric. Sci.</i> 88(11): 1789-1793.	I034/6.37
6	Kalaiyarasi, A., Dhananjaya, M. V. , Nair, S. A., Kumar, R., Yogeesha, H. S., Munikrishnappa, P.M., Devappa, V. and Pavithra, S. 2019. Studies on floral morphology and biology in <i>Jasminum</i> spp., <i>Indian J. Agric. Sci.</i> 89(6): 983-988	I034/6.37
7	Pavithra, S., Dhananjaya, M. V. , Nair, S. A., Kumar, R., Yogeesha, H. S., Munikrishnappa, P. M., Devappa, V., Halesh, G.K. and Kalaiyarasi, A. 2018. Studies on pollen viability in <i>Jasminum</i> spp., <i>Indian J. Agric. Sci.</i> 88(12): 1864-1868.	I034/6.37
8	Pavithra, S., Dhananjaya, M. V. , Nair, S. A., Kumar, R., Yogeesha, H. S., Munikrishnappa, P. M., Devappa, V., Halesh, G. K. and Kalaiyarasi, A. 2019. Studies on cross compatibility in <i>Jasminum</i> spp. <i>Indian J. Agric. Sci.</i> 89(9): 1543-1546.	I034/6.37

9	Dyaberi, A., Dhananjaya, M. V. , Kumar, R. and Rao, T. M. 2015. Floral biology and seed setting in standard carnation (<i>Diathus caryophyllus</i>). <i>Indian J. Agric. Sci.</i> 85(9): 1175-1180.	I034/6.37
10	Ansar, H., Dhananjaya, M. V. , Taj, A., Fakruddin, B., Rekha, A., Kumar, R. and Halesh, G. K. 2016. Analysis of relative nuclear DNA content in carnation (<i>Dianthus caryophyllus</i>) accessions reveals ploidy levels by flow cytometry. <i>Indian J. Agric. Sci.</i> 86(11): 1466-1470.	I034/6.37
11	Bhargav, V., Kumar, R., Rao, T. M., Bharathi, T. U., Dhananjaya, M. V. and Kumari, R. 2018. Characterization of China aster (<i>Callistephus chinensis</i>) genotypes by using DUS guidelines. <i>Indian J. Agric. Sci.</i> 88(1): 138-144.	I034/6.37
12	Kumari, P., Rao, T. M., Sane, A., Kumar, R. and Dhananjaya, M. V. 2016. Characterization of Fusarium wilt in resistant and susceptible gladiolus (<i>Gladiolus</i> spp.) genotypes using DNA markers. <i>Indian J. Agric. Sci.</i> 86(7): 849-853.	I034/6.37
13	Kumari, P., Kumar R., Rao, T. M., Bharathi, T. U., Dhananjaya, M. V. and Bhargav, V. 2018. Exploitation of heterosis for growth, flower quality and yield traits in China aster (<i>Callistephus chinensis</i>). <i>Indian J. Agric. Sci.</i> , 88(3): 453-457.	I034/6.37
14	Rosalind Lallawmzuali., T. U. Bharathi., S. A. Nair., Dhananjaya M. V., B. S. Kulkarni., Munikrishnappa P. M. and Kirthishree S. P. 2023. Palynological studies and their implication in the compatibility of tuberose cultivars. <i>Indian J Horti.</i> , 80(1).	I077/ 6.00
15	Dhananjaya, M. V. and V. V. Sulladmath. 2006. Rapid and efficient clonal propagation of <i>Anthurium andreanum</i> cv. Singapore hybrid. <i>Indian J. Hort.</i> 63 (1): 59-61.	I077/6.00
16	Manjunath, S. Patil and Dhananjaya, M. V. 2011. Studies on evaluation and floral biology of <i>Anthurium andreanum</i> Lind. Under shade house. <i>Eco. Env. Cons.</i> 17 (1): 121-124.	E023/5.41
17	Manjunath, S. Patil and Dhananjaya, M. V. 2011. D2 analysis in anthurium (<i>Anthurium andreanum</i> Lind.). <i>Eco. Env. Cons.</i> 17(1): 125-128	E023/5.41
18	Kumari, P., Rao, T. M., Kumar, R. and Dhananjaya, M. V. 2016. Evaluation of gladiolus genotypes for corm characters. <i>Eco. Env. Cons.</i> 22: 197-S199.	E023/5.41
19	Kumari, P., Kumar, R., Rao, M. T., Bharathi, T. U., Dhananjaya, M. V. , Bhargav, V. 2017. Combining ability analysis for growth, flowering and yield traits in china aster [<i>Callistephus chinensis</i> (L.) Nees]. <i>Vegetos.</i> 31 (1): 1-5	V008/5.27
20	Veluru Bhargav, Rajiv Kumar, T. Manjunatha Rao, T. Usha Bharathi, Dhananjaya, M. V. and R. Venugopalan. 2019. Combining ability analysis for quantitative traits in China aster [<i>Callistephus chinensis</i> (L.) Nees]. <i>Electron. J. Plant Breed.</i> 10(1): 277-284.	E042/5.14
21	Ajay Kumar Pandav, R. Veere Gowda, B. Varalakshmi, K. Padmini and Dhananjaya, M. V. 2020. Evaluation of three way cross hybrids and their parents for storage losses in onion (<i>Allium cepa</i> L.). <i>Int. J. Environ. Clim. Chang.</i> 10(9):123-132.	I239/5.13
22	Parvathi Bennurmth, Rajiv Kumar, Sujatha A. Nair., Venugopalan, R., Dhananjaya, M. V. and Laxman, R. H. 2022. Studies on Genetic Variability, Heritability, Correlation and Path Analysis in Chrysanthemum (<i>Dendranthema grandiflora</i> Tzvelev). <i>Int. j. bio-resour stress manag.</i> 13(3):213-218	I194/5.11
23	Manisha, Padmini K., Veere Gowda R. and Dhananjaya, M. V. 2022. Genetic diversity study in tropical carrot (<i>Daucus carota</i> L.). <i>J. Hortl. Sci.</i> 17(1): 83-87	J302/5.08
24	Dhananjaya, M. V. , Upreti K. K. and Dinesh, M. R. 2021. National Horticultural Fair 2021- A Success Story. <i>J. Horti. Sci.</i> 16(2):315-318	J302/5.08
25	Dhananjaya, M. V. , Sandeep Kumar, G. M., Mahesha, B. and Varalakshmi, B.,	J302/5.08

	2023. Screening for resistance to gummy stem blight, powdery mildew and cucumber green mottle mosaic virus in bottle gourd [<i>Lagenaria siceraria</i> (mol.) Standl]. <i>J. Hortl. Sci.</i> , 18(1): 209-215	
26	Bhargav, V., Kumar, R., Bharathi, T. U., Dhananjaya, M. V. and Rao, T. M., 2023. Assessment of genetic diversity in China aster [<i>Callistephus chinensis</i> (L.) Nees]. <i>J. Hortl. Sci.</i> , 18(1): 84-89	J302/5.08

Books (Edited):

1. Y. C. Gupta, **M. V. Dhananjaya** (2011) Guidelines for the conduct of test for distinctiveness, uniformity and stability on carnation published by PPVFRA, New-Delhi.
2. M. Sankaran., Rajiv Kumar., S. A. Safeena., Sujatha A. Nair., S. Sujatha., G. Karunakaran., Raja Shankar., T. H. Singh., C. Kanupriya., **M. V. Dhananjaya.**, Anuradha Sane., B. R. Raghu., Sridhar Gutam., Vivek Hegde (2023) **SOUVENIR**, International Seminar on Exotic and Underutilized Horticultural Crops: Priorities & Emerging Trends. ICAR-IIHR, Bengaluru - 560089

E-Books:

1. Tejaswini Prakash, Usha Bharathi, T. **Dhananjaya, M . V.** (2021) Arka Flower Varieties and Production Technology-Book NO EB-02/2021 published by ICAR-IIHR, Bengaluru- 560 089

Book Chapters:

1. **M. V. Dhananjaya** and Tejaswini. 2010. National Consultation on Landscape Gardening for Aesthetic Values and Environmental Services "Dianthus and its Utility as component in Landscape Gardening" 29-30 April, 2010.
2. Tejaswini, and **Dhananjaya, M. V.** 2010. National Consultation on Landscape Gardening for Aesthetic Values and Environmental Services " Rosary to Beautyfy Landscape" 29-30 April, 2010.
3. **Dhananjaya M. V.**, Bhanuprakash, K., and Tejaswini. 2006. The Indian Rose Annual XXII "Green Rose: An Intriguing Rose Accession" 2006.
4. Tejaswini, **Dhananjaya M. V.**, Jansi, Rani, B., Ramanchandran, N., Sangama, Meenakshi Srinivas and R. N. Bhat. 2011. Indian Rose Annual XXVII "Rose varieties and advanced lines from Indian Institute of Horticulture Research" 2011.
5. Tejaswini, and **Dhananjaya, M. V.** 2011. Indian Rose Annual XXVII "Indian Roses and Identification Numbers".
6. B. R. Raghu, T. S. Aghora and **Dhananjaya, M. V.** 2022. Curry leaf Improvement in India, In; Compendium for Winter School on "Underexploited Vegetables: Unexplored Treasure Trove for Food, Nutritional and Economic Security" 02-22 February, 2022.
7. B. R. Raghu, T. S. Aghora and **M. V. Dhananjaya.** 2022. Genetic improvement of curry leaf in India: Challenges and future prospects, Indian Horticulture 65(3)127-130.

8. A. T. Sadashiva and **M. V. Dhananjaya**. 2018. Advances in seed production methodology of Bitter gourd, Ridge gourd, bottle gourd and Ash gourd In; Compendium International training program on Seed production techniques in Vegetable crops. Edited by Madhavi Reddy and A.T. Sadashiva, pp 83-93 IIHR, Bengaluru (INDIA).
9. A. T. Sadashiva and **M. V. Dhananjaya**. 2018. Production technology of vegetable crops(Bottle gourd)- A hand book, Edited by A. T. Sadashiva, S. S. Hebbar, A. K. Nair, and M. senthil Kumar, IIHR, Bengaluru (INDIA), pp 26-28.
10. A. T. Sadashiva and **M. V. Dhananjaya**. 2018. Production technology of vegetable crops- A hand book(Ash gourd), Edited by A.T. Sadashiva, S. S. Hebbar, A. K. Nair, and M. senthil Kumar, IIHR, Bengaluru (INDIA), pp 12-14.
11. A. T. Sadashiva and **M. V. Dhananjaya**. 2018. Tarakari belegala utpadana tantragnana kaipidi (Sorekai) Edited by B. Narayanaswamy and A. T. Sadashiva, IIHR, Bengaluru (INDIA), pp 110-113.
12. A. T. Sadashiva and **M. V. Dhananjaya**. 2018. Tarakari belegala utpadana tantragnana kaipidi (Budugumbala) Edited by B. Narayanaswamy and A.T. Sadashiva, IIHR, Bengaluru (INDIA), pp 120-124.

Awards & Recognitions:

i. Individual Award

1. Conferred with Fellow of the Society for Promotion of Horticulture for the year 2021-22.

ii. Team Award

- **Best Oral presentation** during International Symposium on Horticulture: Priorities and emerging trends, held at ICAR-IIHR, Bengaluru 5th to 8th, September 2017
- **Best Thesis Award** to Manisha, Dr. K. Padmini, **Dr. M. V. Dhananjaya**, Dr. V. Keshava Rao, Dr. D. C. Lakshmana Reddy, Dr. R. Uma Maheswari. 2022. Genetics of nematode resistance, yield and quality traits in carrot (*Daucus carota* L.) ICAR-Indian Agricultural Research Institute, New Delhi during "Annual General Body Meeting of SPH" held on 30th May 2023.
- **Best Research Paper Award**
 1. R. Rashmi, **M. V. Dhananjaya** and S. R. Patil. 2018. Commercial multiplication of gerbera (*Gerbera jamesonii* bolus ex Hooker F.) from young Capitulum explants during *International symposium on Horticulture: Priorities and Emerging Trends, ICAR-IIHR during September 05-08, 2017.*
- **Best Poster Awards** to Dyaberi, A., **Dhananjaya, M. V.**, Rao, T. M., Kumar, R., Venugopalan, R. and Seetharam, G. K. 2012. Studies on floral biology and seed setting in carnation (*Dianthus caryophyllus*). Presented during **International conference** on sustainable agriculture for food and livelihood security held at PAU, Ludhiana, November 27-29, 2012.

A. Recognitions

1. Served as **nominee** of **Hon'ble Governor Karnataka**, in Expert Scrutiny Committee for the award of Honorary Doctorate Degrees of **UAS, Dharwad** on 6th June 2023.
2. Served as **Chairperson of Posters Evaluation Committee** of the technical session - "Natural Resource Management for Sustainable Agriculture" during 23-27 June 2019 to be held at The Season Bangkok Huamark, Bangkok, Thailand
3. **Co-Chairperson of Evaluation** of the technical session- "Interdisciplinary innovation in Basic Sciences, Life Sciences, Engineering, Management and Technology Regarding Sustainable Development" during 23-27 June 2019 to be held at The Season Bangkok Huamark, Bangkok, Thailand
4. Served as a **Jury member** and also served in the committee for selecting the best research paper awards during the PG Research Conference, 2021 on 1st October, 2021 at Keladi Shivappa Nayaka University of Agricultural and Horticultural Sciences, (KSNUAHS) Shivamogga.
5. **Nominated** as Member of National Level Technical Committee (NLTC) and Crop Specific Technical Sub Committee for standardization of Term-sheets, Weather Triggers and Risk Periods for the crops notified under Restructured weather Based Crop Insurance Scheme, Gov of India, 2021
6. Member of **DUS Carnation** Task Force Group meeting held during 16th to 20th April 2013.
7. **External expert** in Zonal Horticultural Research and Extension Council (RHREC) & PF Workshop (Rabi) 2018 at UHS, Bagalkot.
8. **Nominated** as **external subject matters specialist** for vegetable science for Annual technical meeting (ATM) of **UHS, Bagalkot** held at COH, Bengaluru from 29th to 30th March 2023.
9. **Nominated** as **external subject matters specialist** for vegetable science for annual technical meeting of **UHS, Bagalkot** held at RHREC, Dharwad from 8th to 9th March 2022.

Permanent Address:

Kaginalli, Shikaripur Tq, Shimoga Dt, Karnataka State

Address for Communication:

#24, 1st Main, Best County-III, Hessaraghatta Road, Near Sambram College, Vidyanarayapura Post, Bangalore - 560 097

Email Address:

dhananjaya.mv@icar.gov.in, dhabanjay1970@gmail.com

Telephone #:

080-23086100 Extn 453, 9141704357, 9379079274