



**CENTRE OF EXCELLENCE FOR DIGITAL FARMING SOLUTIONS FOR
ENHANCING PRODUCTIVITY BY ROBOTS, DRONES and AGVs.
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PG/Ph.D Students Registered in NAHEP-DFSRDA, VNMKV Project

Sr No	Name of Student	Degree.	Department	Name of Guide	Research Statement	Title
1	Shantanu Madhukar Jadhav	Ph.D	SSAC	Dr.A. L.Dhamak	Taking soil sample of soil profile is very difficult and time consuming. So I will use agribots for taking soil samples. For crop monitoring, disease and pest inspection using drones	Investigation on effect of zinc solubilizing microorganisms on growth, yield and nutrient, availability in pigeon pea.
2	Dake Rahul Balasaheb	Ph.D	Agril.Ento	Dr C.B Latpate	Development of digital pink bollworm detector for undamaged and damaged cotton boll population	Seasonal incidence and evaluation of insecticide combinations against major insect pests of BT cotton.
3	Kharade Vilas Gorakh	Ph.D	Agril.Ento	Dr.D.R Kadam	Fall armyworm (FAW) poses a serious threat to global food security. Native to the Americas, It was first detected in Central and Western Africa in early 2016 and has now spread across Sub-Saharan Africa and recently reached south Asian countries and caused huge economic losses. Incidence of fall armyworm reported in India during May 2015 and the phylogenetic analysis has that Indian maize fall armyworm clustered with Florida (rice strain), Ghana, Nigeria and Uganda on maize. Fall armyworm is a pest which has been devastating agricultural crops in India since last year. In such a short period of time, the pest has already caused major crop damage	Host preference and management of fall army worm, Spodoptera frugiperda(J.E.Smith) (Lepidoptera:Noctuidae)

				<p>and economic losses. Data and information regarding fall armyworm is fragmented and there is an issue in smallholder farmers being able to receive this information which is useful, actionable, context-specific and timely. Additionally, given the worm's mobility, every day there are new developments in how farmers are dealing with this pest. Farmers need clear. Digital solutions Carl fill this gap by connecting farmers with tuna, context-.P.c., actionable information to identify, track told treat the incidence of fall armyworm. New developments in digital technology that can provide information on fall armyworm to smallholder fanners, or those who support them. Such technology can include artificial intelligence, machine learning, interactive voice response, big data analytics, digital decision trees, SIVIS, digitally-enabled social networks, or other digital tools and approaches that may best serve smallholder farmers in tackling fall armyworm. Hence keeping the above point of view, the present investigation will be undertaken on "HOST PREFERENCE AND MANAGEMENT OF FALL ARMYWORM, Spodoptera frugiperda (J.E. Smith), (LEPIDOPTERA: NOCTUIDAE)" with following objectives.</p> <ol style="list-style-type: none">1. To study the seasonal incidence of fall armyworm on different hosts in relation to weather parameters2. To screen different cultivars of maize grown in Marathwada region against fan armyworm3. To study the biology of fall armyworm on different hosts4. To study bio-efficacy of different insecticides against fall armyworm on maize5. To study the persistent toxicity of different	
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					insecticides against fall armyworm us laboratory	
4	Navale Mayur Dnyaneshwar	Ph.D	Plant Pathology	Dr.V M Gholwe	From studies related to dry rot of safflower following output will be expected. 1. The observation on survey will indicate the exact cause disease in different agro climatic zone in which Agridrones may be helpful. 2. It will also indicate epidemic and climatic conditions responsible for disease. 3. The pathogen will be isolated on basal culture medium from naturally diseased plant specimens of safflower collected during survey and about isolates, representative of the agro-climatic zones surveyed will obtained, purified and used. 4. Pathogenicity of all test isolates was successfully proved on susceptible safflower variety by sick soil method under controlled conditions of screen house. Based on symptomatology, cultural and morphological characteristics, microscopic observations and pathogen city, the test pathogens will identified and confirmed. 5. All the expected isolates may exhibit a wide range of cultural and morphological variability, which indicated the possibility of existence of variables amongst the population in the Maharashtra state. 6. The studies on integrated management of safflower dry root rot disease under pot culture and field conditions may find most and economical for the management of dry rot disease with significantly highest seed yield and better ICBR.	Investigation on dry root rot of safflower caused by Macrophomina phaseolina (Tassi) Goid.
5	Bhosale Ajinkya Ravindra	Ph.D	SSAC	Dr.Syed Ismaile	To determine moisture level , identification of water stress, various nutrient deficiency by artificial intelligence for betterment of crop and enhancement of yield	Enhancement of drought tolerance in wheat and soil health using promising microbial cultures in

						vertisols.
6	Matre Yogesh Babasaheb	Ph.D	Agril.Ento	Dr.P.R.Zanwar	<p>Use of advances in drone, applications of digital image processing technique for counting of thrips, whitefly and mites on determine the accurate population of insect pests of cotton and also benefits for precision because drones take high quality images for monitoring of pest and disease infestation and also used for spraying of insecticides at appropriate time and while satellites capture the bigger picture of plants. Light aircraft pilots can combine aerial photography with data from satellite records to predict future yields based on the current level of field biomass. His research titles are correlates with weather factors the effect of temperature, rainfall and humidity etc in pest infestation. Collect and process field data with specialized computer hardware and software data; pests, thereby reducing labor needs and facilitating individualized pest management. Use of Smartphone applications and tablet applications in entomology are becoming increasingly popular in precision agriculture. Smartphone's come with many useful applications already installed, including the camera, microphone, GPS, and accelerometer. There are also applications made dedicated to various agriculture applications such as Digital fields book for recording observation of pests and disease, field mapping, obtaining weather and crop information study entitled with "Studies on seasonal incidence and insecticides spray schedule against major insect pests of bt cotton" is undertaking with specific objectives, 1. To study the Seasonal incidence of major insect pests of cotton, their</p>	<p>Studies on seasonal incidence and insecticides spray schedule against major insect pests of BT cotton"</p>

					natural enemies and correlation with weather parameters 2. To study the effect of different insecticides spray schedule against major insect pests of cotton and their natural enemies 3. To study the Monitoring and mass trapping of bollworm complex 4. To estimate the yield losses with special reference to cotton pink bollworm 5. Application of Digital image processing technique for counting of insect pests on cotton	
7	Shaikh Wasim Chand	Ph.D	Agronomy	Dr. P.N Karanjikar	Digital farming with help of drones, robots, small portable machines and automatic guided vehicle provides ease in agricultural operation in today's condition where availability of human labors are decreasing day by day. Agridrones and agribots provide accurate images and field data. Agridrones help in keeping vigin over crop fields, particularly in regard to pest and disease attack. Agribots are used for inter cultivation operations, fruit picking, weeding operation and also helpful in post harvest management. My research entitled as" Effect of plant growth regulators and micronutrients on growth and yield of high density planted BT cotton" for this project i will use digital tools.	Effect of plant growth regulators and micronutrients on growth and yield of high density planted BT cotton
8	Patil Ashutosh Chandrakant	Ph.D	Plant Pathology	Dr.K T Apet	1.The observation on survey will indicate the exact cause of disease in different agro climatic zone in which Agridrones may be helpful. 2. It will also indicate epidemic and climatic conditions responsible for disease. 3. Based on symptomatology, cultural and morphological characteristics observations and Pathogenicity, the test pathogens will identified and confirmed. 4. All the expected isolates may exhibit a wide	Exploration of ginger Rhizome rot complex and its management.

					<p>range of cultural morphological and molecular variability, which indicated the possibility of existence of variables amongst the population.</p> <p>5 The studies on integrated management of ginger rhizome rot disease under culture and field conditions may find most and economical for the management of rhizome rot disease with significantly highest seed yield, better ICBR which can be done by using Agribots / AgriAGVs.6• The research will be helpful to reduce cost of plant protection and doubling farmers income.</p>	
9	Avadhut Dinkar Pawar	M.Sc	Agronomy	Dr.I.A.B. Mirza	<p>Research Statement: A wide range of agricultural practices may become more efficient and accurate, if we adopt these digital farming solutions. These tools effectively replace farm workers drudgery in fields. We can control crop pest, diseases and weed with the help of agricultural drones. Along with agribots and satellite guidance, they could offer total automation of farm production procedures. Application of these tools in agriculture: will definitely enhance the yield of different crops to achieve goal of doubling farmer's income by the year 2022 for higher profit to the betterment of farmers. his research entitled as Effect of Plant Growth Regulators and Fertilizer spray on Growth and Yield of Niger (Guizotia Abyssinica (L.f.) Cass)". It consists foliar spray treatments, If spraying with the help of Agridrones and inter cultivation operation with Agribots makes work more accurate and easier. Niger crop sown at very dense manner, when at peak growth, it is difficult to move within rows, ultimately it obstacle field practices like, spraying, intercultural operations to overcome</p>	Effect of Plant Growth Regulators and Fertilizer spray on Growth and Yield of Niger (Guizotia Abyssinica (L.f.) Cass)

					these problems .Agridrones, agribots and automatic guided vehicles are used. Also these tools save money, time and makes agricultural operations easier. Agridrones are used for uniform spraying and cover more area in short span of time.	
10	Prakash Lingappa Sarukh	Ph.D	Agril.Ento	Dr.S.K Patil	for Crop monitoring, disease and Pest inspection I will use Agridrones	Management of major insect pests of cabbage.
11	Varala Krishna veni	Ph.D	Plant Pathology	Dr .K.D Navgire	Not yet decided	Not yet decided
12	Totewad Prashantkumar Gangadharrao	Ph.D	Plant Physiology	-----	Not yet decided	Not yet decided
13	Angad Prakash Garde	Ph.D	Horti	Dr S.J.Shinde	Not yet decided	Not yet decided
14	Bhosale Pushpanjali Balaso	Ph.D	Horti	Dr V.S.Bhagat	Not yet decided	Not yet decided
15	Lokhande Priyanka Babasaheb	Ph.D	SSAC	Dr A.L.Dhamak	Not yet decided	Not yet decided
16	Patil Nikhil Mahadev	Ph.D	SSAC	Dr P.H.Vaidya	1.To know the morphological , physical, chemical and biological properties of soil 2. To evaluate sol site suitability, capability, irritability and fertility of soil for development of digital soil map by using GIS technique. 3. To develop decision support system for land use planning.	Assessment of soil and water quality for sustainable land use planning by using RS & GIS
17	Bainade Sangramsingh Punamsingh	Ph.D	Agronomy	Dr. W. N Narkhede	Not yet decided	Not yet decided