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About

Krishaka Devo Bhava (KDB) is an e-magazine, highlighting rural issues, published by Ramakrishna Mission Vivekananda Educational and Research Institute (RKMVERI), Ranchi Centre. The first issue of the e-magazine was published on the historic occasion of Swami Vivekananda's 150th birth anniversary celebration and during the international year, 2014, of family farming. Let us add the slogan *Krishaka Devo Bhava* to the traditional ancient exhortations and Swami Vivekananda's own exhortation of *Murkha Devo Bhava*, *Daridra Devo Bhava* and struggle to live up to this new exhortation in letter and spirit. This open access and free e-magazine accepts theoretical and conceptual articles as well as empirical and review papers in different areas of agriculture, rural and tribal issues. The magazine occasionally publishes special and contemporary issue which explore single topic. It also publishes, research note, creative writing, personal field experience, scholarly comments and review of books. Published in three issues per year: January, April and October that coincides the occasion of birth anniversary of Swami Vivekananda, Rabindranath Tagore and Mahatma Gandhi respectively.

Foreword

We are at the edge of victory of corona pandemic. Hopefully, we will soon start a normal and prosperous life. On the occasion of Gandhi Jayanti, I am happy to introduce you about our e-magazine *Krishaka Devo Bhava* (KDB) April and October (merged) issue. It highlighting rural issues, published by Ramakrishna Mission Vivekananda Educational and Research Institute (RKMVERI), Ranchi Centre.

This day (2nd October) is observed with prayer services, cultural events in schools, colleges, and also in government institutions. Gandhi Jayanti to mark the birth anniversary of Mahatma Gandhi. His vision continues to resonate across the world, including through the work of the UN for mutual understanding, equality, sustainable development, empowerment of young people and peaceful resolution of disputes. The ideals of Mahatma Gandhi were Ahimsa (non-violence) and Satya (truth). He not only contributed to India's freedom struggle but also inspired people across the world and raise the voice against discrimination of caste, colour, religion. He was a simple man with vast ideas and he always gives a message to others that "Be the change you wish to see in the world". He devoted his life to relentlessly working towards spreading awareness about the importance of equality, peace, and harmony in brotherhood. His principles and values still hold great value and people consider it to be the right path to follow and these ideas were spread by many of his disciples, literature writers, and artists. Today as we go about our lives let's remember and honor his philosophy by treating people with respect and equality without any prejudices and not conform to violence even at our worst, let's lead a life in peace by following the path of non-violence. Let's adopt Gandhiji's idea in our personal life and convert it to a happy and prosperous life.

Dated: 01. 10. 2021

In the service of God.
Swami Bhaveshananda
Administrative Head

Information for Contributors

Articles for scientific section should preferably between 1000-3000 words. Scientific papers, written in clear, concise and correct English will be considered for publication. Acceptance of articles is based on content of original data or interpretation of the material. The editors reserve the right to edit manuscripts to ensure conciseness, clarity and stylistic consistency.

Manuscript: An electronic version as a Microsoft Word Document is preferred. The manuscript should be typed in double-spacing. References should be arranged alphabetically. The reference list should include all articles cited in the text and tables. Manuscripts should be submitted to the Managing Editor(s), KDB, e-magazine through email: **kdbranchi@gmail.com**.

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Diseases of Pea and Their Management

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Pea, *Pisum sativum*, is an annual herbaceous legume in the family Fabaceae grown for its edible seeds and seedpods. The pea plant can be bushy or climbing, with slender stems which attach to a substrate using tendrils. Each leaf has 1–3 pairs of oval leaflets and can reach 1–6 cm in length. The plant produces white, red or purple flowers and swollen or compressed green seedpods which can be straight or curved. The pods can range in size from 4 to 15 cm long and 1.5–2.5 cm wide. Each pod contains between 2 and 10 seeds, or peas. The pea plant is an annual plant, surviving only one growing season and can reach 30–150 cm in height. Peas are affected by a number of diseases

Downy mildew: *Peronospora viciae*

Symptoms: Downy mildew is one of the most common fungal diseases of peas and is favoured by wet, cool seasons. Night temperatures below 10°C and morning dew promote the disease. Downy mildew impairs wax formation on the leaves and makes plants very susceptible to herbicide damage. Systemic infection can lead to the appearance of the disease late in the season if conditions are conducive, but yield losses due to downy mildew arise from the stunting of plants early in their growth, or from complete loss of seedlings. Substantial losses are likely to occur in cooler districts.

Disease Cycle: The fungus that causes downy mildew survives in the soil and on pea trash and can be seed-borne. Infected seed can act as a primary source for systemic and local infections. The disease can develop quickly when conditions are cold (5 - 15°C) and humid over 90 per cent for 4 - 5 days, often when seedlings are in the early vegetative stage. Individual seedlings become infected and act as foci of infection from which the disease spreads. Dew Promotes sporulation of pathogen and spread through rain water. Dry, warm weather is unfavorable for the disease. Systemic infection of plants can lead to the disease developing late in the season if conditions are favourable.

Management: (1) Varietal Selection: Growing a resistant variety is the most effective means of controlling downy mildew in districts prone to this disease. (2) Chemical Control: Seed dressing with metalaxyl or oxadixyl (Group 4 systemic phenylamide fungicides) can be effective. Seed treatments reduce the number of seedlings with primary infection, thereby reducing the amount of air-borne spores that cause secondary infection in the surrounding crop. (3) Crop Rotation: Extended crop rotations and destruction of infected pea trash will minimize the risk of serious disease. Extended crop rotations allow spore numbers in the soil to decline before sowing again to field peas. A break of at least 3

years between field pea crops is recommended. Avoid sowing pea crops adjacent to last season's stubble. Powdery mildew: *Erysiphe polygoni*

Symptoms: First symptoms appear on the leaves in the form of white floury patches on both sides of leaves. The disease then spreads to other green parts of the plant such as tendrils, pods, stems etc. The patches on the leaves originate in the form of minute discoloured specks from which powdery mass radiates on all sides. In the advanced stages of the disease large areas of the host get covered with white floury patches. Infected plants impart dirty appearance. In extreme severe infections the infected leaves are shed leaving stem devoid of the leaves.

Disease Cycle: The primary infection takes place through ascospores released in soil as a result of disintegration of the wall of cleistothecium. Under favourable conditions, the ascospores come in contact with the lower most leaves of the host, germinate by germ tube and cause primary 'infection'. From the lower most leaf, the infection spreads to other leaves. Later the symptoms in the form of white powdery mass appear. These patches contain conidia and conidiophores. The primary infection may also come from the conidia produced on other hosts as the causal organism *E. polygoni* has a large host range. The secondary infection of the host takes place by conidia which are produced in large numbers and are disseminated by wind. Upon reaching the host the conidia germinate and cause infection. During the growing season, more than one secondary infection may occur because the

establishment of infection and conidia production is a quick process. This results in severe large scale infection on the crops. The cleistothecia-the perennating structures are produced on fallen infected debris in soil. These remain buried in the soil waiting for the favourable conditions. These contain asci and ascospores which serves as primary inoculum of the disease infection.

Management: Field sanitation, rotation of crop and destruction of diseased plant debris may effectively control the disease. Spray of whey water mixed with Garlic extract (5%). Sulphur dusting @ 25-30 Kg/hectare gives effective results. Only one dusting is sufficient. Spraying with Karathane (0.2%), Elosal (0.5%) and Morocide (0.1%) have been found effective in controlling the disease.

Rust: *Uromyces fabae*

Disease symptoms: This often becomes serious in humid regions. The first symptoms appear with the development of aecia. The yellow aecia appear first on the under surface of the leaves, stems and petioles. The formation of aecial stage is preceded by a slight yellowing which gradually turns brown. Plants dry up quickly and the yield is considerably reduced. Initially symptoms of the rust infection are flecking of the leaves, develop into reddish brown pustules, frequently merging into one another, finally bursting to expose a mass of brown spores. Later entire leaf blade and other affected parts give a brownish appearance even from a distance.

Disease cycle: *Uromyces fabae* is a macrocyclic rust fungus, it exhibits all five

spore forms known for the Uredinales. It is autoecious, as all spores are produced by single host. Spores after landing on a leaf of a host germinate and produce infection structures. Pycnia are produced which contain pycniospores. Urediospore is the major asexual spore form of rust fungi produced in massive amount through repeated infection of host plants during the summer.

Disease management: (1) Adjust planting time, planting geometry, intercropping and row spacing. (2) Fungicidal application using Tridemorph 0.1 % or Mancozeb 0.25% effectively control the disease.

Digitalization of Agri-Marketing: Conduit to the Prosperity

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Introduction:

In this digitalized century, we have seen spectacular changes in the agricultural sector of the world. The agricultural sector had shown only positive growth in terms of GDP in India rather than the industrial and service sectors during this pandemic situation. Agricultural marketing, being the mainstay of life for the majority of the population in rural India, back 25% of the GDP and 65% of the total labour force in the country (Department of Agriculture, GOI, 2019).

According to Sundar (2016), “Agribusiness is the sum total of all activities involved in the manufacture and diffusion of farm supplies, production activities on the farm, storage, processing, and distribution of farm commodities and items made from them”. The scenario of agribusiness and marketing, in the global platform, is changing promptly and this wave has already touched the sore of the Indian market. This sector is now more apprehensive with customer orientation and diversification rather than intensifying production quantity.

Marketing is as crucial as a production factor in the agricultural sector. Hence, to address this need our Prime-minister has launched ‘National Agriculture Market’, a digital trading platform, to address the tastes and preferences of the customer along with better income opportunities for the producers and nourishing the rhythm of rural economic development.

As the Government of India is focusing on digitalizing India through the telecommunication revolution and technological up-gradation, the agriculture system has also been effected by this wave and going through a rapid change from centurial old physical buyer and seller concept to the virtual marketing concept, through a digitalized platform like e-NAM, e-Choupal, AGMARKNET, e-NWR, etc. In this article, we are here to discuss the status of digitalized Indian agri-marketing and its effect on the entire agricultural-based livelihood.

Research Methodology:

The researcher had reviewed so many articles, case studies, success stories, news bulletin, governmental portals to present

the theoretical framework to develop the conclusion part with special reference to strategic value chain establishment.

Result and Discussion:

Vision of Digital Agribusiness Marketing:

‘Atma-nirbhar Bharat’ Movement, 2020 is the vision of the Prime Minister of India, Narendra Modi, for making our nation self-reliant in terms of five I’s - Intent, Inclusion, Investment, Innovation, and Infrastructure which are solely based on our economic, infrastructural and systematically reformation (Muralidharan, 2020).

The main focus of ‘Atma-nirbhar Bharat’ was given to the agro-allied sector with the main motto of **“One Nation, One Agricultural Market”** with the special emphasis given to the Agri-startups entrepreneurs and also to achieve the goal of Doubling Farmers’ Income by 2022 (Madaswamy, 2020).

Digitalized Marketing: A Novel Model of Agri-Market Strategy:

E-agribusiness or E-agriculture is the amalgamation of ‘Information and Communication Technology’ and the ‘Agricultural’ sector to create more innovativeness and more efficiency. The digitalization of the agricultural sector has

included Artificial intelligence, Big data analytics, Blockchain technology, Internet etc. to modernize this sector and transforming it (Gula et al., 2021), from the traditional localized market to nationwide market facilities and minimizing the middle man interference from the value chain management.

The nature of traditional agricultural markets was fragmented with poor competitiveness and inefficiency and frequently changed price policy but the digitalization of this sector can not only provide a wide range of consumers but also remove the market time barrier along with the intermediaries which ultimately reduces the marketing cost and wastages of product on a farmers’ perspective.

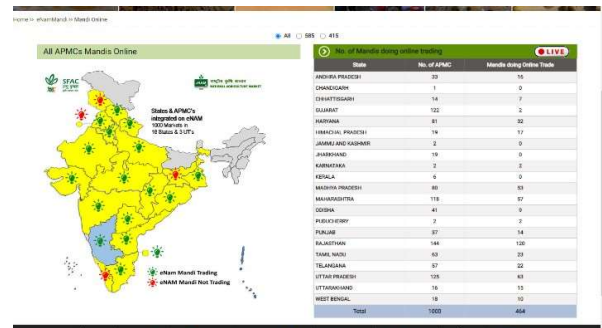


Figure 1: Total number of mandis associated with e-NAM

As a reformative policy, the Indian government has taken several steps to develop this digitalized idea. On 14th April 2016, our Prime Minister has launched the e-NAM (electronic – National Agricultural Marketing) portal, which is one of the

revolutionary steps in the agro-marketing sector. Small Farmers Agribusiness Consortium (SFAC) under the Ministry of Agriculture, established this portal facility to provide one market facility throughout the nation by connecting all the existing APMCs (Beheraa et al., 2015). In the initial stage, 21 mandis from 8 states were linked with e-NAM and later increased to 1000 mandis till May 2020.

Since its launch, e-NAM had registered a user base of 1.73 crores of farmers, 1.69 lakhs of traders, and 1856 FPOs across the 21 states of India along with more than 150 commodities, including oilseeds, cereals, pulses, fruits, fibers crops, and vegetables are traded in e-NAM. To date, 2.16 lakhs of farmers along with more than 2000 traders and 78 FPOs had registered under e-NAM in Jharkhand.



Figure 2: Details of stakeholders of Jharkhand in e-NAM

During the pandemic situation in 2020, the Indian Government had launched 3 more modules to strengthen the system of digitalized marketing. As per the new modules, a new concept of ‘Deemed Market’ has been developed to conduct

trade of commodities from FPOs’ collection center, along with Electronic Negotiable Warehouse Receipts trading (e-NWR) to facilitate warehouse based trading in Andhrapradesh, Telangana, Madhyapradesh, Uttarpradesh, Gujarat and Rajasthan and also providing logistics support like transportation facilities to mobilize the commodity from farmers house to the mandi and from mandi to the warehouse facility or consumer points.

The e-NAM portal not only providing a single market concept but also withstand the nation during the first phase of the pandemic situation by organizing the farmers, traders, and consumers under a single roof. As the farmers can earn their remunerative price and eradicate the intermediaries in the value chain system, Government of India has introduced several other platforms like AGMARKNET, Agri Marketing Application Kisan Suvidha (Beheraa et al., 2015).



Figure 3: Price variation of different crops in AGMARKNET

Directorate of Marketing and Inspection (DMI) had sponsored the AGMARKNET to provide market related information under a single umbrella. This portal functions as a linkage between the wholesale markets with the State Agricultural Market Boards and Directories to provide the information related to price trend especially the diffusion of price, arrival of commodities in market, sales, details of the commodities etc (Chadha et al., 2021). In Jharkand all the wholesale markets are linked with this portal to disseminate the information of markets to the farmers.

Conclusions:

Hence, we can conclude that the technology platform is playing an essential role in the

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upcoming generations. It can be the pathway in bringing the long-desired agenda of doubling farmers' income by 2022. But there is still some lacuna in these digitalized trading platforms like infrastructural gaps, especially in rural India. The people, who are engaged in the Agri-allied sector are mostly unaware of the utilization of electronic gadgets and web administrations. Despite these factors, these platforms can produce a sustainable agro-ecosystem by reducing the costs, providing improved prices and reducing risks in terms of farmers' perspective. Consequently, systematic efforts from both ends, the farmers and the government can change the scenario and can boost the economic well-being of farmers.

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Effect of Vivek Krishi Approach of farming on Growth and Yield of Potato (*Solanum tuberosum L.*)

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Introduction

Potato is one of the most important non-grain food crops in the world. The word potato derives from Spanish word 'patata'. It is a starchy, tuberous crop that belongs to the perennial nightshade *Solanum tuberosum L.* Potato is usually described as the king of vegetables of the family Solanaceae and extensively grown all over the world (Shah *et al.*, 2013). In Jharkhand's rural communities, potato farming is idea for small and marginal (Arya *et al.*, 2016) farmers as it is labour-intensive and produces high yields, as well as a consistent revenue flow (Arya *et al.*, 2016). Organic manure has become essential to sustain production over time and to maintain soil health (Alam *et al.*, 2007). An organic liquid formulation namely *Sanjeevani* (here, *Enriched Sanjeevani*) is a substance that make the soil immortal. It is consisting of cow dung, cow urine, water, molasses, and farm soil. Mix those in proper ratios (generally 1:1:10 proportions of cow dung:

cow urine: water and one handful garden soil, 50 g gram flour and 50g molasses are sufficient for each kilogram of cow dung). The mixture is required to dilute 10 times before application in soil after three days of fermentation and 200 litres of *Enriched Sanjeevani* is sufficient for one acre of land (Tripathy & Dutta, 2019).

Materials and Methodology

The present experiment was conducted at the organic experimental plot of Agriculture, Rural, and Tribal Development Faculty Centre under the School of Agriculture and Rural Development of Ramakrishna Mission Vivekananda Educational and Research Institute, Morabadi, Ranchi. Eight varieties of potato were exposed to grow through Vivek Krishi, non-chemical growing approaches. For *Vivek Krishi* *Enriched Sanjeevani* was taken as a plant nutrient source. *Enriched Sanjeevani* formulation was prepared by using cow dung, cow urine, and water with their 1:1:10 proportion mixture and one handful of garden soils, and

50g of molasses were added for each one kg of cow dung. The mixture was allowed to ferment for three days and thereafter the mixture was diluted 10 times with plain water before applying to the crop. Therefore, an experiment was conducted under one experimental condition, namely C₁: Vivek Krishi (10% *Enriched Sanjeevani*) Finally, field experiments were carried out through Complete Randomized Block Design by employing eight varieties of potato, such as V₁: Kufri Jyoti; V₂: C-1; V₃: C-40; V₄:

2236; V₅: Ultimum; V₆: Sathi; V₇: Lal Gulab; V₈: Nainital. 10% *Enriched Sanjeevani* has applied 15 days interval 6 times starting from 21 DAS (Day After Sowing). Whey water with turmeric powder @10g/lit was applied thrice at 15 days intervals as prophylactic measures against pathogens especially blight, Whereas Neem oil solution @0.3% was applied as a precautionary measure for different chewing pests.

Results and Discussion

Table 1: *Per se* performance of growth and yield attributes of Potato varieties as influenced by Vivek Krishi (10% *Enriched Sanjeevani*).

Variety	Plant Height (cm) at harvest	Number of stems per hill	Average Tuber of Weight (g)	Bulking Ratio	Total Yield (t. ha ⁻¹)
V ₁	59.35	4.53	121.60	10.83	17.41
V ₂	59.21	5.20	125.80	8.42	17.42
V ₃	64.29	5.33	124.27	13.79	24.25
V ₄	58.00	5.13	133.00	16.94	25.65
V ₅	58.72	4.60	129.93	16.93	17.51
V ₆	63.84	4.73	134.73	18.76	15.73
V ₇	63.78	5.33	135.00	12.19	26.83
V ₈	61.75	5.20	125.60	19.33	16.40
SEm(±)	0.19	0.08	0.82	0.17	0.27
CD(P≤0.05)	0.41	0.16	1.75	0.36	0.58

(NS: - DAS: - Days After Sowing; V₁: - Kufri Jyoti; V₂: - C-1; V₃: - C-40; V₄: - 2236; V₅: - Ultimum; V₆: - Sathi. V₇: - Lal Gulab; V₈: - Nainital)

Finding related to different growth and yield attributes of potato as influenced by Vivek Krishi approach of farming approaches of farming practices presented through Table-1. Data indicated that plant height (cm),

number of stems per hill, average tuber weight (g), bulking ratio and total yield (t. ha⁻¹) recorded highest in the case of Vivek Krishi (C₁) experimental condition (Table-1). In case of plant height, V₃ (C-40)

performed highest (64.29cm) in Vivek Krishi (10% *Enriched Sanjeevani*) experimental condition. Similarly, in case of number of stems per hill, the highest (5.33) number of stems per hill was recorded in V₃(C-40) and V₇ (Lal Gulab) in Vivek Krishi (10% *Enriched Sanjeevani*) condition. On the other hands, V₇(Lal Gulab) performed best (135.00g) in Vivek Krishi (10% *Enriched Sanjeevani*) experimental condition. In case of bulking ratio, the maximum bulking ratio (19.33) was reported in V₈ (Nainital) in Vivek Krishi (10% *Enriched Sanjeevani*), as against the minimum bulking ratio (8.42) was reported in V₂ (1.37) in absolute control condition. Finally, the highest yield (26.83 t. ha⁻¹) was recorded in V₇ (2236) in Vivek Krishi condition. The findings also revealed that organic inputs, especially liquid organic manures have greater role on growth and yield expression of potato.

Farmer's Perspective

The climatic condition of the South Chhotanagpur plateau permits potato cultivation twice in a year such as during *Kharif* and *Rabi* seasons. Ranchi district of Jharkhand especially Bero and Nagri blocks have remarkable share in potato production. The potato growers of this region generally grow traditional varieties of 2236 that the

seed of this variety was produced by the farmers themselves as well as some other varieties like Ultimatum, Lal Gulab etc. were cultivated. The potato cultivation is more profitable one over other rabi growing crops. Lack of high yielding varieties, shortage of storage facilities and poor marketing network were the prominent barriers for the commercialization of the potato in the region.

Conclusion

From the above findings, it can be concluded that *Vivek Krishi* (10% *Enriched Sanjeevani*) showed the better result in terms of the growth as well as yield trait expression. In this context, the yield of V₇ (Lal Gulab) in the *Vivek Krishi* experimental condition recorded the maximum yield (26.83 t. ha⁻¹) over rest of the varieties under consideration and this variety is highly suitable for the organic farming through the *Vivek Krishi* (10% *Enriched Sanjeevani*) in the South Chhotanagpur plateau of eastern India especially in Jharkhand.

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Dancing language of bee: A fascinating mode of communication

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Communication is the foundation of all social systems; it is a vital element for transfer of information between sender and receiver. It could be verbal or nonverbal. Generally, the communication includes sound made with the voice, different physical actions as well as the expression. The communication in human being is well established, highly evolved and intensely studied which makes it more advanced form of communication on this planet. However, in every living being the communication is well established. Moreover, the role of communication is very significant in social insect like bee where it is very vital to communicate the correct information (distance and direction of foraging site) among all other worker involved in collection of nectar and pollen. The language of communication in bee is known as 'Bee language/ Dancing language'. This interesting mode of communication (using

dance) was first reported by Father Spitzner in 1788. Later on, detailed study on communication in bee was conducted by Karl von Frisch and reported two different types of dances. The contribution of Karl Von Frisch was later recognised and he was awarded with Nobel Prize in 1973.

Bees are perfectly social insects. They live in a colony (bee hive) and the members (caste) are queen (fertile female), drone (fertile male) and worker (sterile female). The different activities of hive have been assigned to caste. Everyone has different jobs, such as the queen bee to lay eggs, the drones to mate with queen and the workers to keep the hive clean, feed young ones, attend the queen and collection of nectar, pollen and formation of honey. After emergence, the workers conduct indoor activities for first three weeks and later on go for foraging (collection of nectar and pollen) till the death. The worker bees

involved in foraging activity is known as foraging bees. During the honey flow season, at the beginning of the day, some worker bees fly from the hive in search of nectar and pollen (flowering plants). They are called as Searcher Bee / Scout Bee. After sighting the sufficient bee flora, scout bee returns to hive and communicate this information to other foraging bees. The detailed information on the distance and direction of bee flora from hive as well the availability of nectar and pollen is provided to other foraging bees through dances. And by watching that dance, the rest of the bees can understand exactly where that flower can be found. Searcher Bee / Scout Bee performs following two different types of dances.

Round Dance:

This dance is performed when the bee flora is available within 100 meters distance. Scout bees perform dance by making a small circle clockwise and anticlockwise alternately every one or two circles. The dance excites other foraging bees for collection of nectar and pollen. Thereafter they touch the scout bee with their antennae as it helps to detect the scent of flowers clinging to their body hairs. This dance does

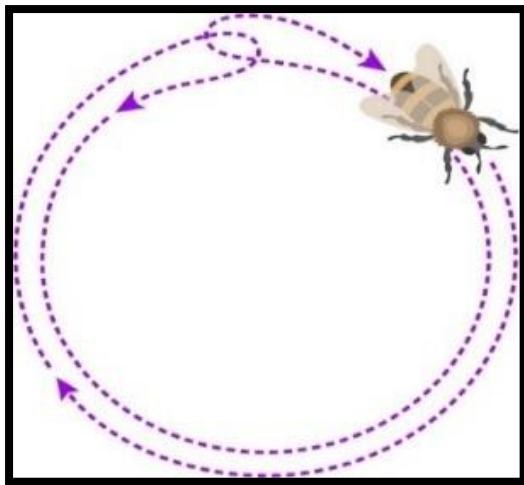
not indicate the direction of the source of food/ bee flora.

Waggle Dance:

Waggle dance is performed by Searcher / Scout bees when the distance from hive to the food source is more than 100 meters. This dance is shaped like the digit 8 of English language. During the dance, they first move straight (either upward or downward) and form a loop on right side coming back to the starting point. Again, they move straight and form loop on left side. Upward straight run of the bees during the dance indicates that the source of the food is towards the sun and downward straight run of the bees during the dance indicates that the food is opposite to the sun. In other words, bees have extraordinary knowledge and perfect distance measuring techniques. Moreover, they change the direction of their straight run according to the position of sun during the day so that the direction can be communicated properly. The number of vibrations (oscillations) during the dance indicates the exact distance between the source of food and the hive. On the basis of accurate interpretation of this information and the movement of the sun, bees find the route to reach out the source of food. Bees move around using the sun as a

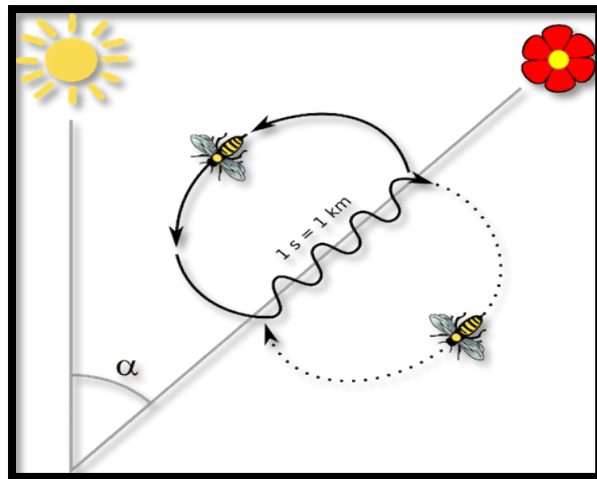
compass. With help of their special photoreceptor, bees can detect the exact position of the sun even during the cloudy weather with the help of polarised light. They have the ability to detect the ultraviolet

light. It is also reported that bees can easily understand the position of the sun during the different seasons of the year with the help of natural clocks on their minds.



Source: <https://askabiologist.asu.edu/>

Round Dance



Source: https://en.wikipedia.org/wiki/Waggle_dance

Waggle Dance

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IPM - Solution for Doubling Farmer's Income

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INTRODUCTION: -

IPM is scientific way of management pest. That means in imp farmer apply pesticide when only, pest harm crop more than economical thresholds level, for example if pest harm R.S 500 and if farmer go for management, they have invested 600 R.S so why they go for managing that pest. Farmer only go for management of pest when they harm more than R.S 600. It also deals with proper management is not controlling it. It is management of pest below economic threshold level by physical cultural, mechanical, biological, chemical methods of managing the pest, in old system farmer go for excess or unneeded application of chemical pesticide, they don't go for scientific way so they invest more money in pesticide some time wrong pesticide, they also an able to protect their crop.

BRIEF DISCUSSION:

IPM covers the systematic practise

1. **Cultural method:** - use of different crop cultivation practices for pest management there are no need of extra investment for pest management.
2. **Mechanical method:** - use different device for pest management, example yellow sticky trap for soft body insect. Which do not need more investment
3. **Physical method:** -use different energy for pest management
4. **Biological method:** - use natural enemy which is apply one time not a greater number of applications
5. **Chemical method:** - use chemical need basis avoid excessive application, it can reduce the cost of production
6. **Host plant resistant:** - use resistant variety from pest can reduce the cost of production because in these plants there are less infestation of pest and give more yield
7. **Legal method:** - follow the legal law for stopping the transmission of

pest from one area to another area for stopping the introduction of pest to new area then it can stop the extra investment of farmer

When farmer follow these points then the production cost is reduced because reduction in the cost of production an increase in the yield of crop due to effective management of pest.

In IMP we go for a proper way of agricultural practise so this can reduce the cost of protection, farmer invest money mostly in managing of pest if they apply the different cultural practices for management of pest there are no extra investment is needed for them, suppose if farmer go for crop rotation, then there is no need of extra investment, it can increase the soil fertility and yield also. There is no any side effect of these practices. in India it is common that farmer see even only one pest then they also apply pesticide which increase the investment cost of the farmer and not effect so much on the yield, in imp it provides the proper management practise which reduce the unneeded investment. In different part of country, it is also found that if farmer see that his / her neighbouring farmer apply any pesticide then farmer also apply bethought thinking that there is need of application of

pesticide this also increase the investment cost then net profit of farmer increasing. in imp we go do not go for newly very high pesticide, in traditional way farmer generally think apply high toxic pesticide which is costly and in next year pest developed the resistant for that pesticide so there are need of increasing the rate of pesticide in imp we go for only recommended dose with changing pesticide, this can stop the resistant development in particular pest for that particular pesticide. in imp we also use the biological practise for example if we go for bird Panch in the field. this do not increase the cost of production but can increase the yield then profit or income of farmer also increasing the economic condition of farmer.

Benefits: -

IPM ensures a better management of crop pest than a single management technique:

With conventional pest management, usually one pest control method is adopted. While, IPM includes a combination of different pest control methods that can effectively control the pest better than conventional methods. In controlling a particular insect that is less likely to occur in the environment it is difficult to manage in one way or another. In this regard, the insect

is better controlled when a broad approach is adopted. If another pest control method fails, the 2nd option can be very effective.

Use of chemical mode of management is considered to be the last option

Integrated Pest Management has never been considered 100% organic. Unlike biological control or other pest management, IPM has never been promoted as a 100% standard practice but the use of agro chemicals is limited. In IPM terms, the chemical management of any pest, insect or weed is considered the last option. Chemicals are only used when all other pest control methods have failed.

The use of high agrochemical doses has the following implications:

- a) Some insects are resistant to certain chemical reactions.
- b) Agro-chemical costs continue to increase with the increase in volume / unit of land.
- c) Insects show human aggression and damage high percentage of plants.

Management practices are not performed until the insects cross the ETL

ETL (Economic Threshold Level) is defined as the number of pests where control measures should be used to prevent a growing number of people from accessing

the EIL (Economic Injury Level). Insects are also part of the ecosystem and its complete eradication is morally biased and can affect the whole environment. But the number of pests is needed to manage it if it gives too much loss to the plant used. To ensure that the insect does not cause significant losses in the proportion of the plant used, it is recommended to start pest management at the stage before that level of damage. That level is ETL. The time between ETL and EIL is the time at which the administrative effect is visible. As this program guarantees a sense of tolerance, it is why it saves huge management costs.

Use of cheaper management inputs before adopting chemical means

As chemical management is the last options, it is therefore the cheapest source of management such as pest control, cultural methods, physical methods, mechanical methods and resistance to pests can be employed to ensure that the number of pests is reduced. This means lower administrative costs and higher revenue.

Environmental safety

As IPM supports the use of chemical demand, it is therefore a safe alternative to the environment. Soil health is maintained

and insects do not tolerate the chemicals used. This improves the yield in the years to come.

Conserves and harbor growth of natural enemies

Since IPM does not promote the indiscriminate use of pesticides, so this does not kill the germs and beneficial insects that precede the pesticides of plants. Since natural enemies are unaffected, this is why they naturally control the number of insects. This reduces the need for pest management.

Utilizes natural resistance of host

IPM involves the use of differential resistance. This is one time to invest in farmers. Farmers only need to buy seeds that are resistant to the disease that exists in one area. This also saves huge management costs as well.

Conclusion:

Conclusion is that the IPM can reduce the cost of input, and very effective way of pest management so more yield at less price or low input cost so it can increase the income at less investment and make gross income double.

As we all know that the total income is equal to the total cost deducted from the sale

price. Total expenditure includes the use of funds from seed purchases to crop management, pest management and harvesting. With the adoption of integrated pest management, the cost of pest control is reduced which is why income is increasing.

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Benefits of Mushrooms

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"1", Mushrooms are Rich in Calcium and phosphorus which are especially useful in building our Bones and Teeth.

"2", To Prevent Anemia: If there is anemia in the body, it can be relieved by playing regularly because the folic acid equivalent to meat keeps the blood quality in the body right.

"3", Diabetes Prevention: Mushrooms are especially useful for diabetics as they are low in sugar.

"4", Prevention of High Blood Pressure and Heart Disease: Mushrooms are the ideal diet for patients suffering from high blood pressure Mushrooms contain vitamins B, C and D, which reduce the risk of heart disease, beriberi, etc.

"5" Prevention of Pediatric Diseases: Due to the abundance of niacin and ascorbic acid / vitamin c, mushrooms are especially useful in preventing pediatric diseases like scurvy, pellagra etc.

"6" Disease Prevention : Various types of mushrooms are especially useful in skin diseases Dandruff prevention medicine is made from oyster mushroom extract.

"7" Provides Protein: In the human body Mushrooms are especially useful for providing plenty of protein This protein is delicious and Yummy.

"8" Obesity Prevention: People who want to lose weight or Gain weight should eat Mushrooms.

"9" Irritation, Bolic Feeling : Mushrooms contain some Niacin and Pantothenic acid, which have been included in the daily list of patients who feel irritated boils on their hands and feet.

"10" Sight: Mushrooms are rich in mineral salts and are also recommended to protect the eyesight of the Elderly.

"11" Tumors: White button and Oyster mushrooms have enough retina which is tumor Resistant.

"12" Virus Prevention: Regular consumption of mushrooms produces a substance called Interferon which acts as a preventative against viral diseases.

"13" Kidney Disease Prevention: Mushrooms are low in sodium and are good for kidney Disease.

"14" Cancer Prevention: Mushrooms prevent cancer. A recent study at the 'National Cancer Institute' in Japan found

that mushrooms have the ability to prevent cancer. Adequate consumption of mushrooms by French people has been claimed to reduce the incidence of cancer over the past Century.

There are more benefits to mushrooms,

Even if you don't eat Mushrooms daily, make Mushroom a part of your weekly meal routine.