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Olericulturiests Modified Age Old Practices under Open Access Land for Sustainability

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Abstract:

Presently, there are more than 70 individual vegetables commonly used by man. The present generations of olericulturiests although depend on high-yielding varieties and even genetically modified seeds are still following the package of practice of their forefathers. T he farmers of yester years secretly relied on only 0.5% to 10% of the chemical fertilizers. But mainly depended on organic manures like night soil, cattle dung, farmyard manure and decomposed vegetable wastes generated in their lands, which accounted for 90% of the inputs. The present day vegetable growers are contented to incorporate stabilized vermicompost in the quantities suggested by themselves based on 2 -3 crop studies and are using the same at least in two split doses prior to sowing and/or transplantations and during the growth of the vegetable crops. The present study is the recorded data of some of the important commercial vegetable crops according to the olericulturiests cultivation practices and their methods of incorporation of chemical fertilizers and vermicompost. Vermicompost of required quantity was supplied to them. Eleven varieties of the vegetables grown are discussed as per the olericulturiests ways and means, for, they have found a sustainable production of vegetables throughout the year on a same piece of land with alternate and rotational vegetable cropping pattern within the vegetable families. Their cultivations have an array of stipulated practices for each and every vegetable in different seasons of the year. Their aim is to produce at least 60 -70% harvests in the off seasons and 80 -100% harvests in the feasible seasons. This paper is a record of work for the commercial production of vegetables that has been practiced by the Olericulturiests of Bangalore Rural District, Karnataka State, India.

Keywords: Olericulturiest, Devanahalli, Bangalore rural districts, Vermicompost, chemical fertilizers, same piece of land, sustainable productivity.

1.0 Introduction:

Olericulturiests in rural district of Bangalore belong to special communities who are engaged in vegetable growing since 16th Century. Their heritage of growing vegetables is quietly, secretly safe-guarded through their forefathers. The vegetable production in India has touched a new height in occupying an area of 6.07MH with the production of 91.3MT (Singh, 2004). It is a well-known fact that growing vegetables is an art and is a challenge from the present agricultural scenario, wherein each vegetable require a separate understanding so as to establish good growing pattern and to get anticipated yield irrespective of climatologically dwindling circumstances namely, sudden weather patterns, shift in seasons, pest bloom, drastic fungal infestations, etc. As is noted there is always a change/difference existing between the recommended patterns of packages for vegetables prescribed by the Agricultural University scientists to the actual olericulturiests' growing pattern of vegetables in the rural districts of Bangalore, Karnataka State, India. Immense research and development has hastened the Olericulture in India (Ghosh, 1999; Phal, 1990; Shanmugasundaram, 1990; Johnson *et al*, 2008). In the present study, the Olericulturiests still relied on their practicality and intuition oriented age-old knowledge for sustainability in the production of varieties of vegetables in a given piece of land mostly inherited by their fore fathers of Bangalore Rural District, Karnataka.

Bangalore Rural District, the southern most part of Karnataka state, India, comprises 8 taluks, namely, Kanakapura, Channapatna, Ramanagaram, Magadi, Nelamangala, Dodballapur, Devanahalli and Hoskote (**Map 1).** All the taluks are established with well distributed age-old Olericulturiests who grow nearly 70 varieties of vegetables through out the year apart from dry land crops and commercial

crops. Depending on the availability of water source mainly ground water either do flood irrigation or drip irrigations depending on the seasons. The olericulturiests' still rely on old world practices inherited by their forefathers' irrespective of the seed types and varietals types for bumper crops. They are happy about the new hybrids with resistant varieties and by growing one or two crops analyze to standardize the water regiment, inputs of inorganic as well as organic fertilizers procure expected yields. The Olericulturiests' 0.5% to 10% chemical fertilizers include Urea, Diammonium Phosphate and Muriate of Potash and sometimes incorporate at the time of sowing especially DAP. Urea with MOP are used before the onset of flowering or during the growths for long standing crops of 120days like tomato, brinjal, cabbage and cauliflower.

The Current Scenario of Vegetables in India, The Database, (Kumar, 2009), enlists the accurate data of vegetable production in India with details for state wise. The present article is the documentation of well –known facts & figures developed by the author based on olericulturiests' methods for practicality in harnessing sustainable yields irrespective of the crop and seasons on the same piece of land. Varietal improvements have been one of the important priority areas for vegetable research in India; hybrids for higher yields, pest and disease resistant, higher storage life (Kumar *et al*, 2004). The olericulturiests carefully manage the crop with nutrient regiments which are well documented in the current paper. The harvests shown in the tables are the actuals obtained throughout the year in the same piece of land with rotational cropping patterns of unrelated and/or related vegetable families to avoid soil borne infestations up to certain extent for the succeeding vegetable crops.

Apart from their way of package of practices, these olericulturiests support the use of vermicompost. For the present study they were supplied to use vermicompost (the nutrient status of vermicompost is shown in **Table: 5)** in place of night soil/FYM/cattle dung/vegetable wastes. As per their regular usage, the olericulturiests depended on only 0.5% to 10% of chemical fertilizers like urea for N, Diammoniumnium phosphate for P and Muriate of Potash for K to get expected yields round the year. Their harvests are on par with their usual productions calculated per acre with the use of vermicompost and chemical fertilizers. The olericulturiests by practical experiences have learnt the disadvantages of the surplus use of chemicals. Singh, 1991, ascertains that, high uses of fertilizers in vegetable production not only affects the quality of vegetables but also taste and gave way for pest infestations. The Olericulturiests never preferred intercropping in their lands for the reasons of marketing and varied harvesting timings with labor intensity. But the research shown by Reddy, (2004) on the same lines of intercropping with vegetables seems to be mandatory in near future to overcome pesticidal issues to the maximum extent and to get income in two crops on a same piece of land, to improve the sustainability and productivity of soils by avoiding monocropping pattern and suggestions are already made in intercropping of lady's finger with cowpea; cabbage with fenugreek and coriander; and tomato with onion. Use of botanical biopesticides (Anonymus, 1996, 1997; NHB, 1998; Murthy *et al*, 2004) and IPM (Birthal and Kumar, 2004) are not yet accepted by the independent Olericulturiests of Bangalore Rural Districts of Bangalore, Karnataka, India.

2.0 Materials and Methods:

The present study was the thorough observations carried out in parts of Devanahalli taluk, one of the Bangalore Rural Districts of Karnataka, India. The data entry is as followed by the Olericulturiests' package of practice for eleven varieties of vegetables namely, tomato (*Lycopersicon esculentum*), brinjal (*Solanum melongena)*, carrot (*Daucus carota sativus*), beet (*Beta vulgaris*), knol-khol (*Brassica oleracea* var. *Gongylodes* group), cabbage (*Brassica oleracea* var. *capitata)*, cauliflower (*Brassica oleracea var. botrytis*), French beans (*Phaseolus vulgaris*), potato (*Solanum tuberosum*), Lady's fingers (*Abelmoschus esculentus*) and Radish (*Raphanus sativus*).

Irrespective of the vegetable type, the preparations of land prior to sowing and/or transplantations were same as prescribed by the University of Agricultural Sciences, GKVK, Bangalore [Information Centre]. The required quantities of vermicompost were supplied to the olericulturiests. The olericulturiests had sound knowledge in the growth and percent yield of each and every vegetable crop. **In Table: 1** the total information on durations of the crop, growth, harvests obtained is shown. The duration of the crop was very important to decide the required quantity of chemical fertilizers and vermicompost

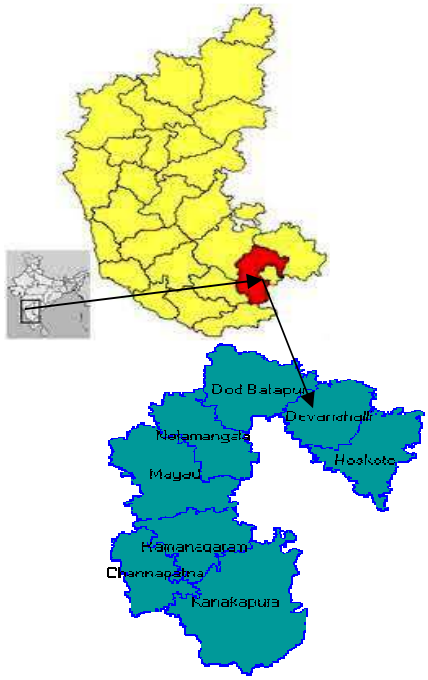
which was directly proportional. Season was an utmost important factor that was kept in mind. The methods of sowing, transplantations, distance between row to row and plant to plant were as per the guidelines of the Agriculture scientists. Olericulturiest gave prime importance to the growth of each vegetable crop. Regular inspections during growth were well monitored apart from frequency and intervals of perfect irrigations in three main seasons - rainy, winter and summer.

Table: 2 -provides the details on required dose of chemical fertilizers and vermicompost/acre/crop as followed by the Olericulturiests. Care was taken not to mix up of chemical fertilizers and vermicompost. As a thumb rule vermicomposts were incorporated earlier to chemical fertilizers. Both chemical fertilizers and vermicompost were used in split doses which were calculated based on the duration of the respective crop, its growth periods and the season under cultivation. This was ensured to obtain the soil tilth and organic nutrient incorporations well in advance into the soil for breathing, amelioration, control of infestations and non-intermittent nutrient supply. Usually chemical split-dose fertilization was provided after 10days of split dose of vermicompost for the incorpation and establishment of life-force present in the vermicompost into the soil structure.

As per the inherited knowledge of olericulturiests' forefathers, in the present day too, their built-in practicalities were applied throughout the year for each and every vegetable crops as enumerated in **Table: 3**. Their practices for three different seasons namely, rainy, winter and summer were tricky and quite secretive. These were well protected knowledgeable facts passed from generation after generation to safeguard the crop in all the seasons irrespective of varietals and hybrids. The Olericulturiests give prime importance to the genetic nature of the crop and thus growing of vegetables on to the same piece of land to get not only better yields but quality yield irrespective of dwindling seasonal patterns, fungal infestations, pest bloom and extended period of rainy/winter/summer seasons has been a possibility.

As an art Olericulturiest planned the sowing/transplantations of vegetable crops in an annual cycle of every month and predict percent yield expectations well in advance as shown in **Table: 4**. Every month a suitable day was decided for sowing of that particular vegetable crop which was more or less same as were decided by their fore fathers. As old practices, majority relied on the "Panchanga" - the sacred Hindu Calendar read by their village "Head Priest" (who is also trained by his fore fathers). Accordingly plannings for the sowing was done. The olericulturiests and the Head Priest were well versed in climatological studies and to a maximum extent intuitively overcame the loss of the crop. Together they anticipated the adverse effects that might happen over the crops were predicted and accordingly suitable changes were planned that might be required to implement at least 3 -7days well in advance. Accordingly the olericulturiests' altered regular pattern of irrigations, fertilizations and spray of fungicides or pesticides to protect their crops to get better percent yields **(fig. 1 and 2**) for lucrative pricing in the whole sale markets.

Map: 1 Showing 8 Taluks of Bangalore Rural District in Karnataka, India. The present study-data was carried out in Devanahalli Taluk. 11 varieties of vegetables namely, tomato, brinjal, carrot, beet, knol-khol, cabbage, cauliflower, French beans, potato, lady's finger & radish were grown for observational data.



India, Karnataka State and Bangalore Rural Districts

Table 1: Actual data obtained from the Olericulturiest for the following vegetables based on their cultivational practices

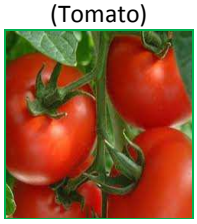
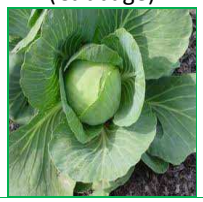
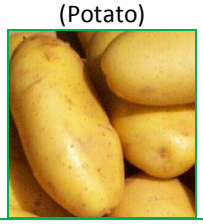
Vegetable crops	General details
Lycopersicon esculentum (Tomato) 	**Crop duration:** 120 days **Transplantation within:** 30 days **Growth period:** upto 60 days **Initial yield recovery:** 60th day-80th day (25% harvest) **Maximum yield recovery**: 80th day - 100th day (50% harvest). **Final yield recovery:** 100th day - 120th day (25% harvest) **Harvests per acre**: av.10tons
Solanum melongena (Brinjal) 	Crop duration: 120days **Transplantation within:** 30 days **Growth period:** upto 60days **Initial yield recovery:** 60th day - 80th day (25% harvest) **Maximum yield recovery:** 80th day - 100th day(50% harvest) **Final yield recovery:** 100th day - 120th day (25% harvest) **Harvests per acre:** av.9tons
Daucus carota sativus (carrot) 	**Crop duration:** 90days **Sowing method:** direct **Growth period:** upto 80days **Harvest:** at a time total harvest **Harvests per acre:** av.10tons
Beta vulgaris [Beet] 	**Crop duration:** 90 days **Sowing method:** direct **Growth period:** upto 80 days **Harvest:** at a time total harvest **Harvests per acre:** av.10tons
Brassica oleracea var. *Gongylodes* group (Knol-khol) 	**Crop duration:** 60days **Sowing method:** direct **Growth period:** upto 60 days **Harvest :** at a time total harvest **Harvests per acre:** av.10tons
Brassica oleracea var. *capitata* (Cabbage) 	**Crop duration: 120days** **Transplantation within:** 30days **Growth period:** upto 80 days **Harvest:** at a time total harvest **Harvests per acre:** av.10tons
Brassica oleracea var. botrytis (Cauliflower) 	**Crop duration: 120days** **Transplantation within:** 30days **Growth period:** upto 80 days **Harvest:** at a time total harvest **Harvests per acre:** av.10tons
Phaseolus vulgaris (French beans) 	**Crop duration:** 90days **Sowing method:** direct **Growth period:** upto 60days **Initial yield recovery:** 50th day - 60th day (25%harvest) **Maximum yield recovery:** 60th day -75th day (50% harvest) **Final yield recovery:** 75th day - 90th day (25% harvest) **Harvests per acre:** 8tons
Solanum tuberosum (Potato) 	**Crop duration:** 90days **Sowing method:** direct **Growth period:** upto 80days **Harvest :** at a time total harvest **Harvests per acre:** av.9tons
Abelmoschus esculentus (Lady's fingers) 	**Crop duration:** 120days **Sowing method:** direct **Growth period:** upto 60days **Initial yield recovery:** 45th day - 60th day (25% harvest) **Maximum yield recovery:** 60th day - 90th day (50% harvest) **Final yield recovery:** 90th day - 120th day (25% harvest) **Harvests per acre:** av. 7tons
Raphanaus sativus (Radish) 	**Crop duration:** 45days **Sowing method:** direct **Growth period:** upto45days **Harvest**: At a time harvest **Harvests per acre:** 6tons

Table 2: Usage of chemical fertilizers and vermicompost per acre in split doses for the respective vegetable crops as used by the olericulturiests

Vegetable crop type	Chemical fertilizers per acre	Vermicompost per acre
Lycopersicon esculentum (Tomato) **(120 days crop)**	**N:** 100 Kg; **P:** 300Kg; **K:** 200 Kg **For nursery bed:** only P - 5Kg **After transplantation:** NPK 15Kg each **Once in 20 days :** NPK 20Kg each	**2 tons:** 500 Kg each before transplantation, after flowering and once in 20 days interval
Solanum melongena (Brinjal) **(120 days crop)**	**N:** 100Kg; **P:** 300Kg; **K:** 200 Kg **For nursery bed:** only P - 5Kg **After transplantation:** NPK 15Kg each **Once in 20 days :** NPK 20Kg each	**2tons:** 500 Kg each before transplantation, after flowering and once in 20 days interval
Daucus carota sativus (carrot) **(90 days crop)**	**N:** nil; **P:** 50Kg; **K:** nil **Applications:** at the time of sowing	**1 ton:** 500Kg before sowing and 500Kg after 40 days.
Beta vulgaris (Beet) **(90 days crop)**	**N:** 50Kg; **P:** 50Kg; **K:** 50Kg **Applications:** after 20days NPK 15Kg each once in 2 weeks up to 60days	**1 ton:** 500Kg before sowing and 500Kg after 40 days.
Brassica oleracea Gongylodes Knol-khol**(60 days crop)**	**N:** 100Kg; **P:** 50Kg; **K**: nil **Applications:** N after 20days 50Kg and after 45days 50Kg. P at the time of sowing	**1 ton:** 500Kg before sowing and 500Kg after 40 days.
Brassica oleracea var. *capitata* (Cabbage) **(100 days crop)**	**N:** 100Kg; **P:** 200Kg; **K:** 100Kg **For nursery bed:** P 10Kg **After transplantation:** NPK 20kg each **Once in 15 days :** NPK 20kg each up to 90days	**2 tons:** 500Kg before transplantation, after 30 days, 60 days and 90 days.
Brassica oleracea var. botrytis (Cauliflower) **(100 days crop)**	**N:** 100Kg; **P:** 200Kg; **K:** 100Kg **For nursery bed:** P 10Kg **After transplantation:** NPK 20kg each **Once in 15 days :** NPK 20kg each up to 90days	**2 tons:** 500Kg before transplantation, after 30 days, 60 days and 90 days.
Phaseolus vulgaris (French beans) **(90 days crop)**	**N:**100Kg; **P:** 50Kg; **K:** nil **Applications:** P at the time of sowing 50Kg After 40days 50Kg N and 50Kg at 65th day.	**1.5tons**: 500Kg before sowing, 1 ton at the time of flowering
Solanum tuberosum (Potato) **(90 days crop)**	**N:**25Kg; **P:** 50Kg; **K:** 25Kg **Applications**: P 50Kg before sowing. After 30days 25Kg each of N and K	**2 tons:** 1 ton before sowing and 1 ton after 30 days of flowering
Abelmoschus esculentus (Lady's fingers) **(90 days crop)**	**N:** 50Kg; **P:** 50Kg; **K:** 50Kg **Applications:** P 25Kg each before sowing, and after 20 days. N and K 25Kg each after 20days and after 60th day	**1 ton:** 500Kg before sowing and 500Kg after 40 days.
Raphanaus sativus (Radish) **(60 days crop)**	**N:** nil; **P:** 50Kg; **K**: nil. **Applications:** P 25Kg each before sowing and after 20days	**500Kg:** 250Kg before sowing and 250Kg after 20 days.

Table 3: Practicalities as followed by the olericulturiests during three seasons for the same type of vegetables on a same piece of land

Vegetable Crop type	Rainy season	Winter season	Summer season
Lycopersicon esculentum (Tomato) (120 days crop)	*Keeping the track of av.3yrs of rain pattern, the transplantations to do. *To reduce input of Urea.	*The best season. * Regular spray of fungicides and pesticides.	*Drip irrigation a must. *Fertilizers a must. * At high temperature, to avoid flood irrigation.
Solanum melongena (Brinjal) (120 days crop)	* Regular spray of fungicides and pesticides. *No flood irrigation.	*Regular spray of fungicides and pesticides. *Minimize irrigation.	*The best season. *Flood irrigation a must rather than drip method.
Daucus carota sativus (carrot) (90 days crop)	*No fertilizations. *harvest plans before heavy rains.	*Best season. *Not to forget to spray an advance dose of fungicides.	*Increase frequency of flood irrigation. *Nofertilization.
Beta vulgaris (Beet) (90 days crop)	*Heavy thinning a must. *Not to irrigate.	*Best season. *Not to irrigate heavily.	*Heavy irrigation required. *Avoid fertilization.
Brassica oleracea var. *Gongylodes* group (Knol-khol) (60 days crop)	*More fertilization a must. *Advance spraying of fungicides a must	*Best season. *Not to irrigate heavily.	*Heavy irrigation a must. * Not to neglect advance spray of pesticides.
Brassica oleracea var. *capitata (*Cabbage) [100 days crop]	*Heavy fertilization a must. *Alternate weeks sprays of pesticides and fungicides.	*Best season. *No heavy fertilization; no heavy spray of pesticides and fungicides.	*Flood irrigation is a must. *Not to neglect pesticides.
Brassica oleracea var. botrytis (Cauliflower) (100 days crop)	*Heavy fertilization a must. *Not to neglect alternate weeks sprays of pesticides and fungicides.	*Best season. *No heavy fertilization; no heavy spray of pesticides and fungicides.	Flood irrigation a must. Not to neglect pesticides.
Phaseolus vulgaris (French beans) (90 days crop)	*Avoid heavy fertilization. *Avoid drip/ flood irrigation.	*Best season. *Avoid drip/ flood irrigation.	*Heavy drip irrigation or frequent flood irrigation. *To avoid sowing at high temperatures.
Solanum tuberosum (Potato) (90 days crop)	*Avoid sowing during heavy rains. *Avoid fertilizations.	*Best season. *Avoid advance spray of fungicides.	*Heavy irrigations a must. *Advance spray of fungicides.
Abelmoschus esculentus (Lady's fingers) (90 days crop)	*Avoid irrigations. *Advance spray of fungicides and pesticides.	*Best season. *Advance spray of fungicides and pesticides.	*Irrigation a must. *Advance spray of fungicides and pesticides.
Raphanaus sativus (Radish) (60 days crop)	*Avoid heavy rain sowing. *No fertilization, require advance dose of pesticides.	*Best season. *Require irrigation.	*Irrigation a must. *Early harvest a must.

Note: Fertilizations: N= Urea; P= Diammonium Phosphate; K= Muriate of Potash

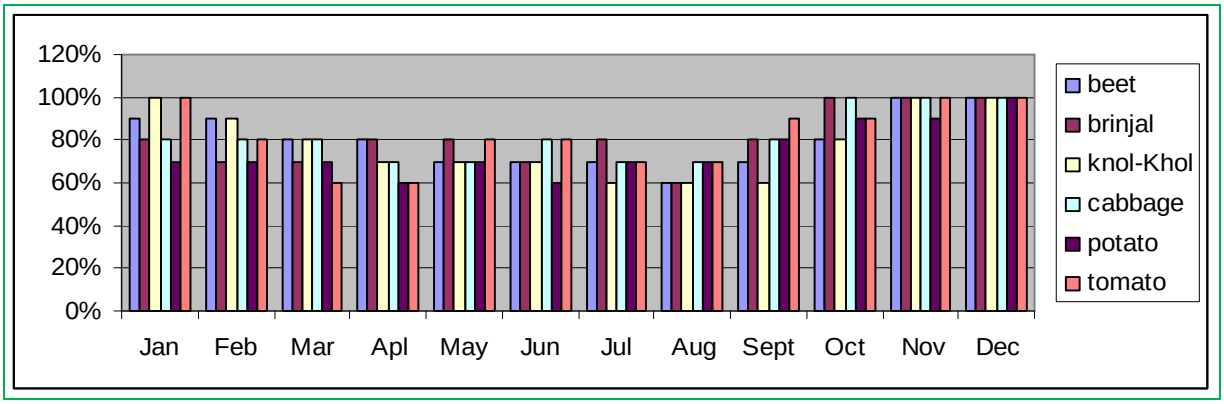


Fig:1 Expected yield recovery sown on every month of the calendar year for beet, brinjal, knoll-khol, cabbage, potato and tomato.

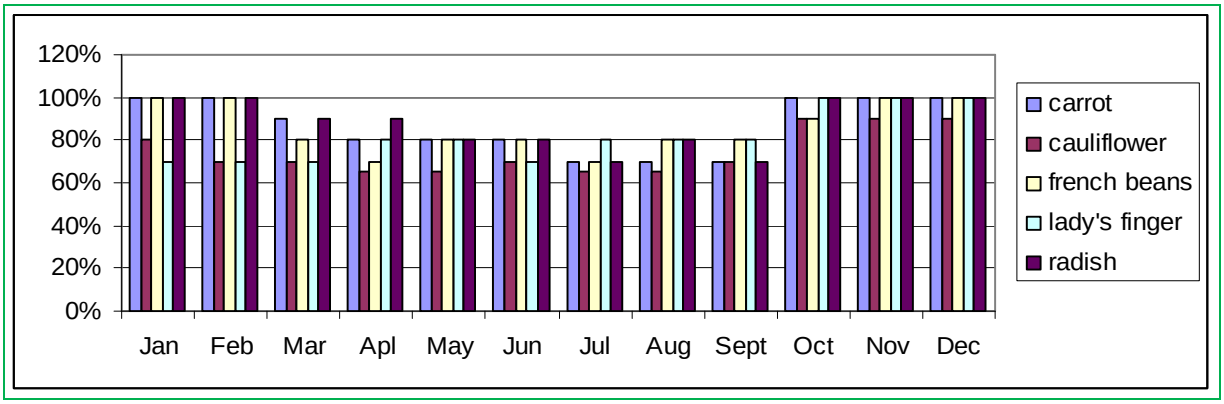
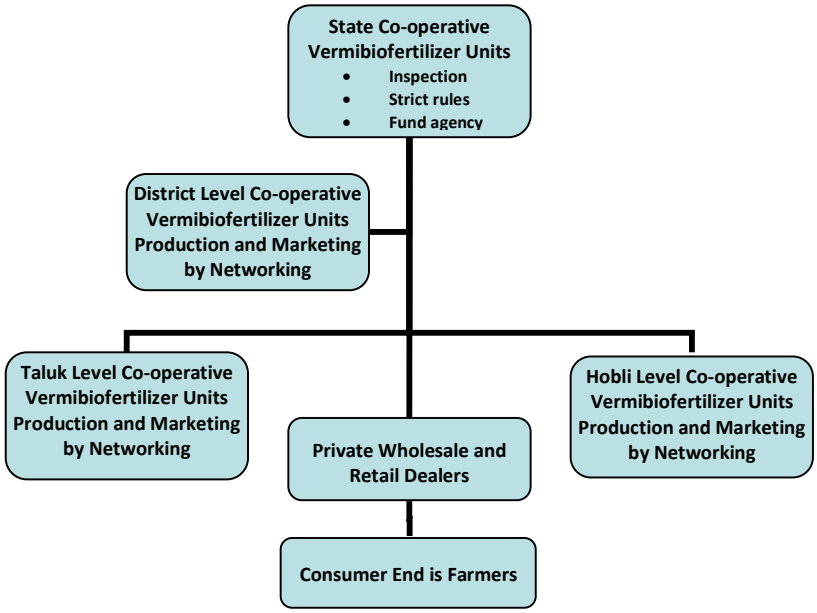


Fig: 2 Expected yield recovery sown on every month of the calendar year for carrot, cauliflower, French beans, lady's fingers and radish.



Flow Chart 1: Showing the Probable Working Mode of Vermibiofertilizer Units within the State, Under Indian Scenario

Table 5: Nutrient Status of the Vermicompost Supplied to the Olericulturiest

Nutrient Type	Nutrient Range
Major Nutrients (In %)	
Total Nitrogen	2.33 -3.36
Available Nitrogen	0.05-0.07
Total Phosphorus	0.97 -1.40
Available Phosphorus	0.66 -1.61
Total Potassium	0.79 -1.52
Available Potassium	0.41 -1.61
MEGA NUTRIENTS (in %)	
Total Calcium	1.76 -2.31
Available Calcium	1.10 -1.32
Total Magnesium	0.40 -0.74
Available Magnesium	0.20 -0.40
Total Sulphur	0.28 -0.36
Available Sulphur (ppm)	80 -780
Total Sodium	0.14 -0.16
Available Sodium	0.13 -0.16
Micro Nutrients (in ppm)	
Total Zinc	135 -274
Available Zinc	37.02 -38.14
Total Manganese	340 -1459
Available Manganese	159.0 -162.4
Total Copper	38.60 -135.72
Available Copper	10.75 -36.76
Total Iron	1992 -6891
Available Iron	202.44 -206.85
Other Relevant Details	
pH	7.01 -8.02
Total Soluble Salts (TSS) %	0.72 -0.0.91
Bulk density gm/cc	0.65 -0.73
Moisture in percentage	40 -50
Organic matter %	13.50 -16.50
Organic carbon %	7.50 -9.10
C: N ratio	10:1–18:1

3.0 Results and Discussion:

The constraint in vegetable production due to low productivity, post harvest losses, losses due to pests and diseases, high cost of hybrids, lack of multiple resistant varieties, lack of technology transfer and lack of database as reported by Singh *et al* (2004), none of these were affected by the Olericulturiests taken under study. The present results of the study proves that the olericulturiests of Devanahalli Taluk, Bangalore Rural District, Karnataka, India, depended on careful planning and designing of their vegetable crops mainly based on their ancestral package of practices with slight changes due to use of chemical fertilizers, vermicompost, seed type, dwindling in climatic factors and pest/fungal infestations. Their pieces of land were of witnesses for their harvests and the lands were inherited from their fore fathers. Sowing day in a month and selection of vegetable crop was done carefully and kept in mind the market scenario at the time of harvests. Olericulturiest also gave prime importance to market demand of vegetable type, festive seasons of Hindu calendar and Hindu seasonalities for food preferences all that were important to get bumper crop with highest margins in their earnings. This was of prime importance because almost all olericulturiests in Devanahalli Taluk, Bangalore rural district came under marginal (<1ha), small (1–2ha) and semi- medium (2-4ha) sectors. As stressed by Kumar *et al* (2004) small holders have distinct advantages in vegetable production as the entire family work in as labors and most of vegetables have a short crop-cycle that helped to provide returns round the year.

The present study was carried out to prove the futuristic possibilities of sustaining the heritage of olericulturiests' state-of-the-art practices. It was mandatory and need of the hour to record their practices for future use as many were losing lands in the development of urban civilization for commercialization. As shown in the study, the use of chemical fertilizers per acre was an av. of 66Kg N, 132Kg P and 75Kg K per acre totaling to 273Kg of chemical fertilizers per acre. Olericulturiests calculated fertilizer/sq.ft account to few grams only. According to them it is the balancing requirement of nutrients for a plant in a given area. For them use of chemical fertilizers was to boost the crop, simultaneously relying on organic manures as their fore fathers did and current use of vermicompost was to ameliorate the soil for plants' sustenance which they called as "sacred life force substances" for their vegetable crops for sustainable productions for the sustainability of soils, to reap every time good harvests on a same piece of land. IPM was not practiced by these Olericulturiests. The future efforts need to be focused on these aspects to minimize the use of pesticides. Work by Birthal and Kumar (2004), in lines of IPM in cabbage production is impressive. Similarly the authenticity, importance and practicality of biopesticides were not appreciated by the Olericulturiests. An in depth works (Anonymus, 1996, 1997; NHB, 1998; Murthy *et al*, 2004) in the line of biopesticide is promising and is also need of the hour to be implementable at the olericulturiests fields. This needs to be welcomed by our present day

Olericulturiests. Future emphasis must be given for IPM and biopesticides, the way they are now recommending vermicompost with authenticity and have placed vermicompost as prime factor for sustainability and for sustainable productions.

After careful understanding, the olericulturiests' with trial and error basis had themselves recommended the quantity of vermicompost inputs for their crops. They were contented to use vermicompost for all benefits and it saved their time in procurement of required organic manures which were in scarcity due to dwindling of animal husbandry, dearth of forest soil, impracticality in use of river bed soil, fear to use undecomposed landfill garbage and also their own crop wastes. Their concern was to get vermicompost through Government as done in for chemical fertilizers by the Central and State Governments. During the interactions many of the Olericulturiests suggested bulk productions of vermicompost, and its dissemination for farmers as done for chemical fertilizers are as shown in **Flowchart - 1.**

4.0 Conclusion:

According to Kalloo, NCAP, 2004 (ICAR), impact assessment of agricultural research has been in vogue since the green revolution era, most focusing on food grains and commercial crops, but the developments in vegetable crops largely remain unnoticed perhaps due to lack of socio-economic data. The present research data is the outcome of the same thought and efforts has been laid on to show the knowledge, intuition and semi-scientific practices of ever successful Olericulturiests in getting bumper crops, who were the prime authorities in keeping the nation's 2nd rank in vegetable production on world map in enhancing nutritive crops for mankind. This paper stresses on the acceptance of vermicompost for its soil-plant sustenance from the Olericulturiests' point-of-view and their concern and request for the Government to supply vermicompost on regular supply with quality product as is done for chemical fertilizer chain-links. Stress is pointed out to popularize microbial biofertilizers, biopesticides and IPM in near future.

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