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Influence of organic manure and biofertilizers on horticultural crops: Review

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Abstract
Bio-fertilization is extremely important in the development and implementation of sustainable agriculture practises. Significance in order to prevent natural and environmental pollutants from worsening. The control of conventional nutrient management methods is becoming increasingly important in order to increase nutrient concentration in soil while simultaneously reducing pollution. A large variety of bacterial species are capable of promoting plant development. Bio-fertilizers coupled with organic manure promote plant development by increasing root biomass; total root surface promotes plant growth. Increased nutrient absorption and production by decreasing consumption of natural sources of energy.
Biofertilizer or fertilizer of organic origin have demonstrated that their use has the ability to enhance the biomass and productivity of a broad variety of crops. As a result, the study findings on various features of horticulture crops have been evaluated.

Keywords: Influence, organic, biofertilizers, horticultural, evaluated

Introduction
Soil microorganisms play a vital role in controlling organic matter degradation and plant nutrition availability. The major approach to sustainable agriculture in terms of production is bio inoculants of microorganisms. microbial concoctions can be used as an organic input to improve agricultural yields and productivity, organic Manures lower fertiliser dosages, allowing the plant to absorb more nutrients. Biofertilizers are made up of live organisms or latent cells of efficient microorganism strains. By cooperating in the root zone (rhizosphere), they aid crop nutrient absorption. It increases the availability of key nutrients in a form that is easily absorbed by plants by enhancing the activity of efficient strain microorganisms in the soil. Bio fertilisers are distinct from both inorganic and organic fertilisers. Since they do not apply any type of fertilisers to plants directly and do not formulate particular nutrients Bacteria, algae, actinomyctes, and fungus are examples of microorganisms. Bio fertiliser production is a relatively easy procedure, and the cost of installation is quite low when compared to inorganic plant sources. (2006, Chen) [1]. Bio fertilisers, in addition to chemical fertilisers, are an essential component of integrated nutrient management (INM). They provide us with a sustainable supply of plant nutrients and are cost effective. In the biotech industry, microorganisms and their cooperation with plants are being used. Fertiliser manufacturing. There has been a recent uptick in interest in environmentally friendly, long-term farming techniques. Bio-fertilization is crucial in the development and implementation of sustainable agriculture practises in order to prevent natural resources from deteriorating and contamination of the environment A large range of bacterial species are capable of exerting influence. positive impact on the plant growth. These rhizobacteria can have direct or indirect positive impacts on plant development. Several mechanisms for PGPR's positive effects on plant development are discussed. Growth hormone secretion includes a variety of actions (a) biofertilization, (b) root growth stimulation, (c) rhizoremediation, and (d) plant stress control. Because the use of inorganic fertilisers is not feasible in organic fruit production, organic fertilisation is critical. As a result of N2 fixation and phosphate solubilization bacteria, It's frequently utilised in organic plant cultivation.
Bio-fertilizers coupled with organic manure impact plant development by increasing root biomass; total root surface allows greater nutrient absorption and yield increase by lowering natural energy expenditure. The natural fertilizers have demonstrated that their application may enhance biomass and yield and a broad spectrum of agricultural production.

Advantages of using organic/biofertilizers fertilizers

- Plant health is maintained by a balanced type of nutrient delivery. The biological activity of soil is increased as a result of this increases organic nutrient conversion (mobilisation)
- Because of the availability of excellent soil structure, mycorrhizae colonisation increases P availability and stimulates root development.
- The nutrients have a gradual release capability and contribute to the soil's residual pool of organic N and P, reducing nitrogen loss and phosphorus fixation.as well as organic manures also provide micronutrients.
- Organic manures provide food for essential bacteria and earthworms, as well as promoting their growth and development. It aids in the reduction of soil-borne disease susceptibility. pathogens, parasites, and certain plant diseases

Biofertilizers classification

The various types of biofertilizers which help the plant to grow at different levels of its growth are:

1. Nitrogen Fixing Biofertilizers
2. Phosphate Biofertilizers
   a. Phosphorous Solubilizing Biofertilizers
   b. Phosphorus Mobilizing Biofertilizers
3. Biofertilizers for Micro-nutrients
4. Plant Growth Promoting Rhizobacteria
5. Compost

Effect of Organic Manures on Plant Growth, Yield and Quality of Horticultural crops

Effect of Farmyard Manure on Plant Growth, Yield and Quality of Horticultural crops

Among the bulky organic manures, farmyard manure has a prominent place. The FYM appears to operate directly by boosting crop production or by speeding up respiration rates. Cell permeability or hormone growth action are both used in this procedure. It plants with N, P, and K in readily accessible form. Decomposition of biological matter.

Mahadeen (2009) [2] reported a greater strawberry fruit production (27.62 t ha-1) after applying 40 tonnes of organic fertiliser (FYM) + 60 kg ha-1 NPK fertilisers, whereas the lowest output was recorded by Mahadeen (2009) [2] The untreated plot had the highest strawberry production t ha-1).

Lakpale *et al*. (2003) [3] observed the greatest number of branches per plant and pod production of pea with the application of FYM @ 2.5 t ha-1. as relation to no FYM application.

Effect of Vermicompost on Plant Growth, Yield and Quality of Horticultural crops

According to Hidalgo *et al.* (2002) [4], vermicompost treatment improved percentage pore space and water retention capacity while decreasing bulk density. Proportion of air space and density

In Ohio state circumstances, Arancon *et al*. (2004) [5] conducted an experiment on vermicompost processed from food waste and paper wastes. Plastic hoop tunnel with a high ceiling. The vermicompost was applied at the rate 5-10 t ha-1 and supplemented by inorganic fertiliser only to equalise the initial fertiliser rates of 85-155-125 kg ha-1 NPK. They reported that vermicompost significantly increased leaf area (37 percent), number of plant runners (36 percent), and shoot biomass (37 percent) in strawberry cv. 'Chandler' as compared to other sources.

With the use of vermicompost, Singh *et al.* (2008) [6] observed enhanced plant spread, leaf area, dry matter, and total fruit production in strawberry plants. In conjunction with inorganic fertilisers, 2.5 to 10 t ha-1.

The greatest fruit weight was recorded by Baviskar *et al.*, (2011) [7] fruit length and fruit width in sapota after using 15 kg plant-1 vermicompost

- **Effect of Biofertilizers on Plant Growth, Yield and Quality of Horticultural crops**

Effect of Azotobacter on Plant Growth, Yield and Quality of Horticultural crops

Azotobacter is a gramme negative bacteria that belongs to the Azotbacteriaceae family. It is a free-living (non-symbiotic), aerobic, nitrogen-fixing organism. There are seven different types of A. beijrinckii, A. chroococcum, and A.vinelandii are Azotobacter species. A. paspali, A. agills, A. insigins, and A. macrolcytogenes are among the species.A. chrcoccum was found in more acidic and arable soils.when A.beijarinckii is in a state of neutrality.

This bacterium can produce antimicrobial compounds in addition to nitrogen. hormones, and siderophore, as well as antifungal chemicals, hormones, and siderophore Sharma., (2002) Azotobacter likes to grow near to roots in the soil. The food source for their proliferation is either dead organic materials found in the soils or derived from root exudates released by growing roots. They fix atmospheric nitrogen as part of their daily practise. It first remedies for their own build-up, but it quickly becomes obsolete. As the population stabilises, fixed nitrogen is released into the environment. Close proximity to the roots as a result, nitrogen is swiftly released. And plant absorbs it.

Azotobacter cells are not generally seen on the rizoplane (root surface), but they are numerous in the rhizosphere (soil), according to Subba Rao (1993) [9].

Ranna and Chandel (2003) [10] experimented with biofertilizer and nitrogen on strawberry cv. 'Chandler' and discovered that Azotobacter inoculated plants obtained a higher yield than non- inoculated plants. plant's greatest height (24.92 cm) more leaves per square metre plant (26.29 cm), greater leaf area (96.12 cm2), and the number of leaves (96.12 cm2) (18.70) runners per plant, heavier fruit (10.02gm), and more fruit more fruit breadth (22.91mm) and length (35.9mm), as compared to others.

According to Umar *et al*. (2010) [11], applying 25% nitrogen by green leaf 219 International Journal of Chemical Studies Subabul (Leucaena leucocephala) manure plus 75% nitrogen

The use of urea in combination with a biofertilizer resulted in plant spread (27.8 cm), maximum plant height (20.9 cm), TSS (6.83 oB).

Singh and Singh (2009) [12] investigated the effects of biofertilizers and bioregulators on strawberry cv. growth, yield, and nutritional status. Charlie, kind and observant When it was ripe, it had the highest fruit set production and the best fruit quality.@ 2kg ha-1 injected with Azotobacter and Azospirillum 60 kg nitrogen ha-1 and 100ppm GA3 are added to each.

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Azotobacter inculation increased okra fruit production from 3.8 to 4.2 t ha-1, according to Pattanayak *et al.* (2001) [13] However, combining FYM with Azotobacter at a rate of 5t ha-1 boosted yield from 4.7 (uninoculated but supplemented with FYM) to 5.3 t ha-1.

Apart from fixing atmospheric nitrogen, Azotobacters are also known to manufacture and release auxins, vitamins, and growth factors, according to Yadav and chaudhauri (1999) Antifungal medicines and growth-promoting chemicals Extensive Azotobacter inoculation of seeds in the field in India or onion, brinjal, tomato, and cabbage seedlings beneath Various agro-climatic conditions established that it saves 10 to 20 percent nitrogen fertilizers.

Shrama *et al*., (2010) [15] investigate the impact of integrated nutrient management on the development, yield, and quality of tomato hybrid cv. Geeta Kuber. Seedling dip and Azotobactor applied together @2kg ha-1 +75 percent nitrogen + full PK dosage + full FYM dose Increase the growth, yield, and quality of the characters by a substantial amount.

Effect of Phosphate Solubilizing Bacteria (PSB) on Plant Growth, Yield and Quality of Horticultural crops:

PSB has a unique role as a biofertilizer in making fixed soil phosphorus accessible to plants. Plant growth regulators are produced by biofertilizer, which stimulates plant development.root development (Greaves and Webley, 1969) [16]

Zargar *et al*., (2008) [17] discovered that the number of main flowers (8.0) per plant and the number of secondary blooms per plant had a significant influence.(7.0), total number of flowers per plant (10.0), total number of flowers per plant (10.0), total number of flowers per plant (10.0), total number of flowers per primary fruit per plant (7.0), secondary fruit per plant (5.0).by the number of fruit per plant (10.0) and the total amount of fruit per plant (17.0) PSB + nitrogen 225 kg ha-1 combined application phosphorous 150 kg/ha.

According to Gogoi *et al*. (2004) [18], using PSB in combination with a single super phosphate greatly improved growth and yield. Due to the increased availability of phosphorus, metrics in bananas have improved.

Baghel *et al*. (2004) [19] studied the response of phalsa cuttings to biofertilizers and found that the maximum number of leaves per stem, the highest leaf area, and the highest leaf number were the most important factors. The proportion of cutting success and survival was discovered under PSB in the form of a slurry

Dar *et al*. (2010) [20] found the application of 75 per cent recommended dose of fertiliser (NPK) along with PSB as soil application @ 2 kg ha-1 proved to be most profitable and remunerative for production of okra crop under sub-tropical conditions of Jammu region (J&K).

Combined Effect of Organic Manures and Biofertilizer on Plant Growth, Yield and Quality of Horticultural crops

Iqubal *et al*., (2009) reported that the strawberry plant attained the height of 21.24cm with 28.16cm plant spread, 74.95 cm2 leaf area and fruit size (37.62 × 28.01 mm) and fruit weight (15.87g) with the application of 25 percent nitrogen through FYM augmented with Azotobacter which was at par with the plant with cent percent nitrogen in the form of Urea in combination with Azotobacter.

Yadav *et al.* (2011) [14] reported the highest plant height, fruit length, and fruit weight Fruit width following a combination of vermicompost and Azotobacter in papaya with 100% prescribed NPK. According to Anburani and Manivannan (2002) FYM at 25 tonnes ha-1, as well as 100% NPK + biofertilizers (Azospirillum + Phosphate solubilizing bacteria) kept track of the greatest number of fruits set.

Reference

1. Chen JH. The combined use of chemical and organic fertilizers and biofertilizer for crop growth and soil fertility. In: Intl. workshop on sustained man. of the soilrhizosphere system for efficient crop production and fert. use. Land Development Department Bangkok, Thailand 2006.
2. Mahadeen AY. Influence of organic and chemical fertilization on fruit yield and quality of plastic house grown strawberry. Jordan J Agric. Sci 2009;5(2):167-177.
3. Lakpale R, Srivastava GK, Choubey NK, Singh AP, Joshi BS, Pandey RL. Response of gram (Cicer arietinum) to integrated nutrient management in vertisols of Chhattisgarh plains. Indian J Ag. Sci 2003;73(3):162-163.- 6.
4. Hidalgo PR, Harkess RL. Earthworm casting as a substrate amendment for chrysanthemum production. Hort. Sci 2002;3(7):1035-1039.
5. Arancon NQ, Edwards CA, Bierman P, James DM, Stephen L, Chirstie W. Effect of vermicompost on growth and marketable fruit of field grown tomatoes, peppers and strawberries. Pedobiologia 2004;47:731-735.
6. Singh R, Sharma RR, Kumar SI, Gupta RK, Patil RT. Vermicompost substitution influence growth, physiological disorders, fruit yield and quality of strawberry. Biores. Technol 2008;99:8507-8511.
7. Baviskar MN, Bharad SG, Dod VN, Varsha GB. Effect of integrated nutrient management on yield and quality of sapota. Plant Archives 2011;11(2):661-663.
8. Sharma N, Gupta A, Samnotra RK. Effect of integrated nutrient management on growth yield and quality parameters in tomato. The A. J Hort 2010;5(2):314-317.
9. Subba Rao NS. Biofertilizers in agriculture and forestry 3rd Rev. Ed. oxford publishing Co. Pvt. Ltd. Series New Delhi 1993,72-73.
10. Rana RK, Chandel JS. Effect of biofertilizer and nitrogen on growth, yield and fruit quality of strawberry. Prog. Hort 2003;35(1):25-30.
11. Umar I, Wali VK, Kher R, Sharm A, Gupta N. Impact of integrated nutrient management on soil nutrient status in strawberry cv. Chandler. J Hill Ag 2010;1(1):79-81.
12. Singh A, Singh JN. Effect of biofertilizers and bioregulators on growth, yield and nutrient status of strawberry cv. Sweet Charlie. Indian J Hort 2009;66(2):220-224.
13. Pattanayak SK, Mohanty RK, Sethy AK. Response of okra to Azotobacter and Azospirillum inoculation grown in acid soil amended with lime and FYM. Plant 2007;2:251-256
14. Yadav PK, Yadav AL, Yadav AS, Yadav HC. Effect of Integrated nutrient nourishment on vegetative growth and physicochemical attributes of papaya (Carica papaya L.) fruit cv. Pusa Dwarf. Plant Archives 2011;11(1):327- 329
15. Sharma N, Gupta A, Samnotra RK. Effect of integrated nutrient management on growth yield and quality parameters in tomato. The A. J Hort 2010;5(2):314-317
16. Greaves MP, Webley DM. The hydrolysis of myoinositol

hexaphosphate by soil micro-organisms. Soil Biol. Biochem 1:37-43.
17. Zargar MY, Baba ZA, Sofi PA. Effect of N, P and biofertilizers on yield and physico-chemical attributes of strawberry. Agro Thesis 2008;6(1):3-8
18. Gogoi D, Kotoky U, Hazarika S. Effect of biofertilizers on productivity and soil characteristics in banana. Indian J Hort 2004;61(4):354-356
19. Baghel BS, Yadav R, Tiwari R, Gupta N. Response of phalsa (*Grewia subinaequalis*) cutting to biofertilizers and rooting media. Indian J. Hort 2004;61(1):89-91
20. Dar RA, Gupta AK, Samnotra RK. Effect of integrated nutrient management on seed yield contributing parameters of okra. The Asian J Hort 2010;4(2):263-266.
21. Iqbal U, Wali VK, Kher R, Jamawal M. Effect of FYM, urea and Azotobacter on growth, yield and quality of strawberry cv. Chandler. Notulae Not. Bot. Hort. Agrobot. Cluj 2009;37(1):139-143
22. Yadav PK, Yadav AL, Yadav AS, Yadav HC. Effect of Integrated nutrient nourishment on vegetative growth and physicochemical attributes of papaya (*Carica papaya* L.) fruit cv. Pusa Dwarf. Plant Archives 2011;11(1):327-329.