

# Effect of Organic Fertilizer on Growth, Yield and Quality of *Pisum sativum* L.: A Review

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## ABSTRACT

Organic farming is an agricultural system which incorporates a high level of biological diversity and environmental uses that conserve naturally resources and have strong levels of animal welfare. It is also an integration of agricultural system to sustainable development, increased the fertility of the soil and biodiversity. During the unusual release, it inhibits chemical pesticides, antibiotics, chemical fertilizers, genetic material and the hormones enhancing growth. This farming program primarily aims to cultivate the field and grow crops in such a way that keeps the soil healthy through natural waste and other biological and beneficial organisms. It looks at the impact of the way and long time taking agricultural intervention on the agricultural ecosystem. It is designed for the production of food, while at the same time creating a natural balance in order to prevent the soil, the fertility and pest control. This review paper is based on organic fertilizer and the nutrient content of pea (*Pisum sativum* L.). Animal manure, compost and bio manure are used in making organic manure which forms the alternative service for mineral fertilizers. The nutrient supply from organic fertilizers such as manure, compost may not be necessary to the plant needs at any stage of growth but often needed in the crop growing period. With the availability of food, fruit, vegetables and plants are similar in organic and non- organic fertilizers in the long-term results of the testing. Similarly the availability of nutrients like phosphorus, potassium and many trace elements are lower than the soil solution, as they are more concentrated in complex soils as insoluble forms. Foliar fertilizer is therefore often used to provide the nutrients needed by plants for adequate filtration, to develop the nutritional levels of plants and to increase the yield and quality of crop.

**Key words:** Agriculture, Compost, Foliar fertilization, Garden pea (*Pisum sativum* L.), Organic farming

## Introduction

Planting is a process that involves planting crops and keeping animals for food and supplies. Farming is part of agriculture where we can grow crops and raise livestock (Eyhorn *et al.*, 2019). The term organic farming was coined by Lord bound in 1940. Organic farming is a method which involves planting crops in a natural way. The process involves the use of bio material which avoids chemical materials for main-

taining soil fertility and balance in environment thereby reducing environmental damage and pollution (Roos *et al.*, 2018; Yadav *et al.*, 2022). Organic farming, a comprehensive system focused on improving soil health, the use of landfill and the greater use of local labour, is excellent in dry land areas in many cases and the dry lands offers a lot of advantages which can be considered to make easy to use. Until the middle of the 20th century, the eco-friendly farming system was the goal of the world's

ancient agriculture, which ensured the production of plants and animals and the protection of the environment. During the green revolution, the indiscriminate application of synthetic fertilisers and pesticides leads to a devastating impact on the ground, water and air pollutants, which in turn reduces soil production (Surekha *et al.*, 2010). Awareness of soil health and crop quality has led to the development of a conservation program such as organic farming. Organic farming is the ways which promote ecological sustainability (Jaipaul *et al.*, 2005).

Organically farming system involves the crop production, dairy products etc. Organic farming and mainly designed to produce crops, vegetables without the use of chemical fertilizers. Real crop production or organic farming not only leads to the production of plants and vegetables physically but also helps to keep the planet alive and to maintain a healthy life through natural waste (Ramesh *et al.*, 2005). Natural waste from plants, animals and aquatic waste can be made inside the farm, which helps to create a more environmentally friendly environment by releasing nutrients for farming to increase sustainable production. USDA (U.S Department of Agriculture) organic farming research group states that organically farming system is a system to avoid or eliminates the use of synthetic ingredients like fertilizers, pesticides, hormones, feed additives etc. Possible size of dependence on crop rotation, plant residues, manures, non agricultural waste, mineral additives and biological system for mineral integration and protection of plant. Now the world has reached more people, so in order to find a friendly environment we need to increase agricultural production in a sustainable way. Modern world agriculture is a fast-growing sector. Although organic produce is less productive than conventional farming, organic crops have one of the most targeted food levels. In many developing countries, the majority of people prefer natural products. So now the biological sector has a good meaning. On the other hand we can say organic farming as chemical free farming (Seifert *et al.*, 2017).

Organic fertilizer is a naturally produced fertilizer that promotes sustainable plant growth. Especially organic fertilizer contains carbon and is added to the soil. Organic fertilizers can be made from fresh/ dried plant/ plant material, animal manure etc (Nxumalo *et al.*, 2019). Just organic fertilizer can be made through the fermentation process using organic waste. Liquid chemical fertilizers help to reuse

organic matter because they carry vital plant nutrients and beneficial organisms. There are many types of organic fertilizers and they can be used in a variety of ways depending on the type. The use of organic fertilizers in the field helps to increase crop yields and soil structures as well as to catch pests and diseases (Lin *et al.*, 2019). As organic fertilizer produces naturally in plant material and animal manure, it contains low levels of nitrogen, phosphorus, potassium. Natural fertilizer basically contains carbon that is equivalent to or more valuable than the nitrogen and phosphorus content of the fertilizer. Natural fertilizers promote the proliferation of bacterial biomass that stimulates secondary production (Reganold and Wachter, 2016).

Vermi compost can be produced through the decomposition process with the help of earthworms, which destroy the organisms within the soil and the final biological product helps to grow the plant nutrients (Jannoura and Bruns, 2014). Organic farming is a measure to prevent pests from entering pesticides and synthetic fertilizers and maintains a well-needed natural balance (Ramakrishnan *et al.*, 2021). Organic farming offers benefits such as the maintenance of non-renewable resources, environmental protection and improved food quality. Now, the population is growing day by day which is counterproductive to declining living resources, for example food and water. It is therefore now necessary to increase productivity in the agricultural sector (Lori *et al.*, 2017). Approximately 2.74 million MT of products that are certified, are produced by India including products such as oilseeds, sugarcane, cotton, cereals and grains, fruits, tea, coffee, dried fruit, vegetables, spices, processed foods. Madhya Pradesh is the largest producer of organic products among the regions of India followed by Maharashtra, Karnataka, Pradesh and the complete Rajasthan. Certified products exported to various countries such as United States of America, European Union, , Switzerland, Australia, Canada, Israel, UAE, New Zealand, Japan, Vietnam etc (Ramakrishnan *et al.*, 2021). The use of agricultural fertilizers helps to eliminate unwanted and harmful environmental pollutants such as surface water pollution, underground water table etc. It effectively contributes to the degradation of other organic matter in the soil thereby improving soil content (Baswana and Rana, 2007). Many farmers use artificial NPK fertilizer that provides a combination of several nutrients at the same time. Natural fertilizers

such as animal waste and manure have been used for centuries and are an important source of nutrients and organic matter, which improve soil structure (Kumar and Sharma, 2015).

### *Pisum sativum* L.

*Pisum sativum* L. is commonly known as Pea. It is regarded as the chief crop of India cultivated during winter. Pea pod is consumed locally as a chief source of food. It contains protein, carbohydrate, calcium, iron, vitamins, magnesium, phosphorus and amino acids in greater amount. In addition, Peas are considered to be a ground bearing plant by fixing nitrogen in combination with symbiotic rhizobium which is most common in their root buds (Karkanis *et al.*, 2016). Vegetable crops often have a mild dehydration system and a short period of high demand for N mainly in very little organic and nutrient content sandy soils, both preferring leaching of NO<sub>3</sub>. Therefore adding fertilizer helps in improving nutrient uptake from the soil to attain good growth of plants (Lori *et al.*, 2017). It is the main component of the plant and its presence is necessary in order to reduce the growth of plants and many other nutrients. Nitrogen is the necessary component of all living things and is a combination of nucleic acid, protein, and other important organic compounds. Peas are diploid species (2n = 14) which is rated as a high protein diet and considered as year's most important crop for the cold season. It is widely grown in temperate climates and in the highlands of the tropics. Garden peas also called green peas or regular peas are a hardy winter season. It can be used as a dry plant. Pea is usually the fruit of *Pisum sativum* which is small round seed or seed pod. Each pod of garden pea has several peas. Peas are a nutritious and rich source of 7% protein. It is also used as a fresh vegetable, in cans or on the body. The average yield in India is 6.12t / ha (Ramakrishnan *et al.*, 2021).

The crop is harvested under the soil that varies from loamy to heavy kind of soils. It does not take salt and fluid penetration. It maintains a soil pH of 5.5 - 6.5. Field pea is one of the most important perennial crops in India that is produced for a long time in the highlands by emerging farmers. Garden Peas are extremely fertile crop found World Wide. It can also be grown in tropical climates. In India, pea is widely grown in Madhya Pradesh and Bihar. The areas where pea production rate is high in the World are the United States of America, China,

France, United Kingdom, Holland, Egypt, Russia and Australia. Garden pea uses for dehydration, canning, and cooling (Kumari *et al.*, 2010).

**Common Names:** Garden Pea, Ground Pea, Split Pea, Matar (Hindi, Nepali), Vatana (Gujarati).

### Origin and distribution

It is well distributed among Mediterranean Region, Western Central Asia and Ethiopia and called Centre of origin. The Food and Agriculture Organization (FAO) was recently established in Ethiopia and Western Asia as largest centre whereas Southern Asia and the Mediterranean region is the second-largest. Archaeological testament on Peas uses dates back to 8000 BC during Cradle of Civilization. In Western Asia, Peas first crop appeared and from there it expands in Europe, China and India. During ancient period, Greek and Roman writers referred to farming as a pulse and fodder plant. Pea may have arisen from South Western Asia, perhaps from the North West India or Pakistan or in the vicinity of the USSR and Afghanistan. This maybe expands in the Europe cooler region. Central Asia, near east, Abyssinia and the Mediterranean are the four origin centre which has been adopted in terms of genetic diversity (Alam *et al.*, 2010).

### History

During ancient era, peas are cultivated mainly for its dried seeds. These plants are growing as wild plants in the Mediterranean lake and consistent selection from early Neolithic agriculture has improved their yields. Theophrastus during 3rd century BC declares pea as the bean among the other beans which were sown late at night since it had some mildness. During 1<sup>st</sup> century AD, these plants were mentioned in *De re rustica* by Columella, where Roman troops were collecting sand dunes for supplementing their assignments from Numidia and Judea. Garden peas were eaten raw and fresh which were an early Modern Europe luxury item. Field peas and field peas difference dates back to the early 17th century in England: John Gerard and John Parkinson talk about field peas. French eats pods and everything of mange-tout or sugar peas and were sent from Dutch market gardens to France during the time of the French ambassador Henri IV. During January 1660, green peas were imported from Genoa to France in the court of Louis XIV, by extension. They were quickly invented and planted to get their ears warmed with compost and protected under glass. In

1696 Mama de Maintenon and Mama de Sevigné reported that they were “fashionable, angry”. During late 19<sup>th</sup> century, modern peas are fragmented, and their indelible skin is scratched.

### Plant description

Garden pea is an annual plant which completes its life cycle within a year. Mainly grows in cold area, which grows in many parts of the world. The plantation is made possible from the summer to winter, depending on the region (Poore and Nemecek, 2018). Pea is green, pods, which are commonly grown like a delicious crop. Commonly there are 3 kinds of pea which are edible: garden or green peas (*Pisum sativum* L.), snow peas (*Pisum sativum* var. Macrocarpon) and snap peas (*Pisum sativum* var. Macrocarpon ser. Cv.). Snow peas are softer than garden peas and cannot be completely clear. The garden peas mixed across the garden with the snow pea, with large pods and light texture. Snow pea and snap pea pods can be eaten which adds little sweet and cool flavour than garden pea.

### Classification and Variety

Mac Gillivray in 1961 split the *Pisum sativum* genus into a group based on:

1. Pea pod: It is divided into two types: Smooth seeds and Wrinkled seeds. The variety of Wrinkled seed variety is delicious in taste.
2. Height of the plant: Bush and dwarf plant, Average tall species, Tall type.
3. Maturity: Ripening occurs in 65 to 70 days after sowing. After sowing, medium ripening time is 90 to 100 days whereas maximum ripening time is 110 to 120 days.

There are 2 varieties of pea plant found: Smooth Seeded Varieties and Wrinkle Seeded Varieties.

**Smooth Seeded Varieties:** Early varieties include Asauji is a variety of vegetables, greens and smoothies made in IARI. The germination occurs 30-35 days after sowing and flowering occurs in the range of 6-7. Early Superb Variety is the small ones from England with blue leaves. Flowering occurs in 45 days and the 1<sup>st</sup> flower shows itself in node 8-10. The pods are loaded individually. Meteor is the variety species originated in England. They grow about 35-40 cm long and dark green in colour. They have self-producing, 8.7 cm long and have seven smooth grains. Lucknow Boniya is a variety cultivar with white seeds.

**Wrinkled Seeded Varieties:** Early varieties include

Arkel is the most productive vegetable variety. It takes 60 days to harvest the green aroma. Early Badger is the variety of vegetables introduced from the USA. It is ready to be harvested within 60-65 days after sowing. These are resistant to Fusarium interest and considered as good type of tea. Little Marvel is a small variety which is planted in England. The first flower appears on the 9-10th node of 40 days after sowing. Jawahar Matar is a variety developed in Jabalpur, T19 x Early Badger. The plant height is 70-75 cm and bears a heavy powdery mildew. The first harvest begins 50-55 days after sowing and average yield is 4 t/ha. VL-Ageti Matar-7 (VL-7) is developed in Almora, Pant Uphar x Arkel. These are the plants which are very small and have green leaves and white flowers. The seeds are light green in colour which is very bold and tasty having high TSS (16.8%) content. Yield rate is 10 t/ha with 42% of shelf. Pant Matar is developed by genetic selection from the Early Badger x IP3 (Pant Uphar) cross. The first harvest begins in 55 days after sowing which is strongly affected by powdery mildew disease.

Midseason varieties include Bonneville which is a double, medium and long variety. It takes 85 days to ripen raw vegetables. T 19 is medium-sized and duplicate variety. The first flower appears on node 12-14 after 60 days and the pods are blue, slightly curved. Ooty-1 is the variety of pure line selection from PS-133 entry. This is a species with a vigorous rate of about 11.9t / ha per 90 days of vegetation. It resists whiteflies. Punjab 88 (P-88) is small, strong variety with green leaves. It blooms after 75 days and harvested after 100 days of sowing. It is possible to get affected by powdery mildew. Average yield is 15 t / ha. Azad P-2 is a variety that is not resistant to molds. Plant pods are medium-sized, green and brown seeds. It has 90-95 days production time. It has yield rate of 12t / ha (Kumar *et al.*, 2017). Late varieties include NP 29 plants are in the middle with green leaves. The first flower emerges from 14-16<sup>th</sup> node 80 days after sowing. The pods are double-joined. It is suitable for the purpose of exhaustion (Deshpande and Adsule, 1998).

### Climatic Requirements

It thrives in cooler climates. The ideal germination temperature is about 22 °C. It was reported that if the temperature rises at the time of the growing season the harvestment decreases significantly. The maximum monthly average temperature of the

plant is 12.8-18 °C (Maxted and Ambrose, 2001).

### Nutrient Content

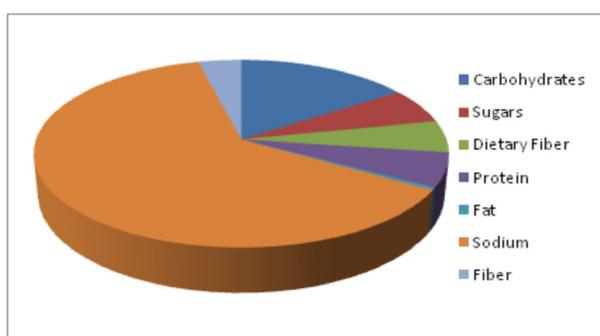
Pea contain high amount of protein, fiber, vitamins, minerals and lutein. These are also starchy. Pea straw has been used as fodder as it is very nutritious. It contain maximum amount of protein (25%), amino acids, carbohydrates, sugars (12%), vitamins A and C, calcium and phosphorus and contain small amount of iron (Table 1, 2 and Fig 1, 2). Pea contains huge amount of essential proteins which can be used in many different purposes (Kumari *et al.*, 2010; Grewal and Maheswari, 2011).

**Table 1.** Nutrient Content of Pea in Grams

NUTRIENT CONTENT	VALUES IN GMS.
Carbohydrates	14.45
Sugars	5.67
Dietary Fibre	5.1
Protein	5.42
Fat	0.4
Sodium	58
Fibre	3.6

**Table 2.** Nutrient Content of Pea in Percentage

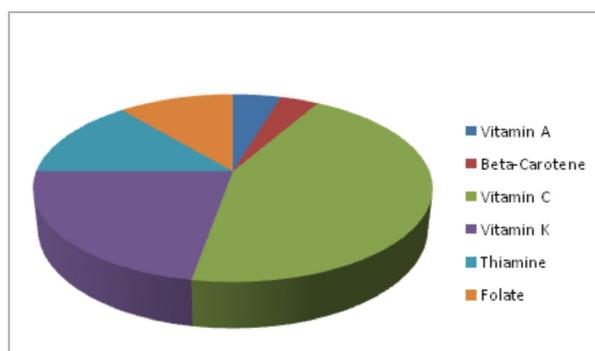
NUTRIENT CONTENT	VALUES IN PERCENTAGE
Vitamin A	5 %
Beta Carotene	4 %
Vitamin C	48 %
Vitamin K	24 %
Thiamine	15 %
Folate	12 %



**Fig. 1.** Pie Chart showing Nutrient Content of Pea in Grams

### Soil Type

Peas mostly grow in soils ranging from sandy loam to clay, although good results are obtained from well-drained, soft, loamy soils. The optimal pH



**Fig. 2.** Pie Chart showing Nutrient Content of Pea in Percentage

range is between 6.0 and 7.5 and if it falls below 6, the soil should get enough fullness, even if it is not overdressed with lime (Lori *et al.*, 2017). The pea is green, sometimes yellow and infrequent. Pod shaped vegetables mostly grown as cold climatic crops. Seeds can be sown in the soil temperature 10 °C (50 °F), but plants grow well in 13-18 °C (55-64 °F). It cannot grow in the summer's heat when the weather is warm and humid, but they thrive in cool, high-altitude, hot climates.

### Season

In the central plains the crop is planted monthly from October to November. In the northern hills, the plant is planted monthly from June to July.

### Preparation of the Field

Proper soil preparation is required. The surface should be smooth and non-abrasive, so that there are no cracks during planting. Complete soil preparation is necessary for the pea harvest to grow better. This fixes a large amount of atmospheric nitrogen in the soil. This is achieved by turning the plow to the ground following one or two destructive plows (Kaur, 2016).

### Sowing Time

Pea is commonly grown in India during the rabbinic era. The sowing occurs in the plains of India from early October to mid-November, from mid-March to late May in the hilly region and a second harvest is also sown in the fall. Sowing seeds in the November first week is a good time to have a good harvest (Ansari and Maahmood, 2017).

### Seed Rate

In the early varieties, the seed rate is 100 to 120 kg /

ha. For mid-season varieties and past varieties, the interest rate is 80 to 90 kg / ha.

### Spacing

For the original variety, the space is 30 cm x 5-10 cm. For the middle and end varieties the spaces are 45 cm x 10 cm.

### Method of Sowing

Flat bed layout is used. It is usually sown by distribution but can also be sown with pulling on or behind a plow. The seeds can be soaked overnight before sowing for good sprouting. A. overcrowding 10 ppm for 12 hours provided very high germination and yield (Ross *et al.*, 2018; Baswana and Rana, 2007). Pea seeds can be drilled by local machinery or by tractor-pulling tractors. Seeds can be sown to a deep of 2-3 cm in the ground drilling or demolition can be done on side lines by 30 cm.

### Manures and Fertilisers

A small amount of nitrogen fertilizer at a rate of about 25 kg of nitrogen/ha is important in reviving the early growth of legumes. Phosphates increase yields and improve quality, the best results being obtained with the use of approximately 50 kg of potato per hectare (Lalito *et al.*, 2018). FYM of about 20 tons per hectare, when applied during land preparation gives good results (Jaipaul *et al.*, 2011; Baswana and Rana, 2007; Kumar and Sharma, 2015).

Organically fertilizers, the fertilizers that are extracted from organic sources that are the wastes of animals, wastes of plants, manures, composts, wastes of municipal etc. Organic fertilizers are the soil amendments that ensure at least minimum percentage of nitrogen, phosphorus and potassium (Kaur, 2016). On the other hand, organic fertiliser include manures, compost, green manures, plant residues, farm yard manures, cottonseed meal, molasses, fish emulsion, bone meal, blood meal, poultry manure, press mud, peat, lime etc (Khan *et al.*, 2015).

**Cottonseed meal:** The cotton seed meal is a by product of industries producing cottons. This meal varies in certain formulation and it is constituted of 7% Nitrogen, 2% Potassium oxide and 3% Phosphorus pentoxide. Cotton meal helps to promote crop production and healthy foliage.

**Molasses:** It is the Sugarcane by product. After extraction of sugar, molasses is released. It is high in calcium, magnesium, potassium and iron. As a

fertiliser it increases the rate of microorganisms which are beneficial to the soil.

**Green Manure:** These are mainly made up of green residues or wastes like pees, alfalfa, red clover and cow pees. In nodules green manures helps to store nitrogen. After the plant is tilted into soil, it helps the nodules to release the nitrogen into environment. As a cover crop they also prevent soil erosion.

**Farm Yard Manure:** It is mainly the garden fertiliser which is made from cow, sheep, poultry and horses wastes. It is considered as the "complete fertilizer" having high amount of organic matter and is the ultimate precious organic soil compost.

**Poultry Manure-** This fertiliser is made from chicken feces and can be used when soil nitrogen content is low as an organic fertilizer. It contains nitrogen, phosphorus, and potassium in maximum amount when compared with other animal manures. One chicken contribute about 8-11 pounds of manure per month.

**Press Mud:** This is the collected waste of sugar mill industries. This is made by crushing 100 tons of sugarcane to make 3 tons of press mud and the left over product is considered as the by-product.

**Blood Meal:** This is cattles dried, powdered blood which is collected from cattles slaughter houses. It has maximum amount of nitrogen, so over applying leads to roots burning of the plants. Therefore, the gardener needs to be careful. It should be applied just before planting as it enhances green leafy growth.

**Bone Meal:** It contains great source of calcium and 15% phosphate. It basically promotes strong root systems and flowering and can also be used at the time of growing of flowers, bulbs and fruit trees. This manure is finely grounded bone and collected from animal slaughter houses as a by-product.

**Fish Emulsion:** It is one of the organic manure used in garden. This is created from either the whole fish or parts of a fish. It gives 4-1-1 NPK ratio and mostly used as foliar feed which rises plants quick nitrogen level.

### Growth of *P.sativum*

In the entire life cycle, pea plants meet their different growth and development stage, germination and emergence stage, vegetative growth stage and reproductive growth stage. Mainly the effect of nitrogen sources is greater in the vegetative growth stage which includes composts. Compost helps in increasing the plant height, number of leaves etc. The effect

of nutrients mixture also helps the vegetative stage of pea plant to meet significantly increased plant height (Kaur, 2016; Khan *et al.*, 2015).

### Intercultural Activity

**a) Tracks and stage moves:** This is an important task to be done when the vines are two months old and in the spreading stage. Usually plants should be based on bamboo poles. Delays in this work greatly reduce yields (Pathak and Ram, 2004).

**b) Weed Control:** Atrazine, propazine and simazine is used in 0.54 kg per acre which provides superior control against broad leaf weed and late control over wild oats damaging peas.

**Irrigation:** Water requirement depends largely on the local Agronomic environment. The plant can be watered for ten days. One or two irrigations during flowering and fruit set are essential (Grewal and Maheswari, 2011).

**Harvesting and Yield:** When the pods are completely filled and the garden pea changes colour from dark to light green, the crop is ready to be harvested. Early varieties take 45 to 60 days to harvest. Mid-season varieties take 75 days to harvest. Late varieties take 100 days to harvest (Wazir *et al.*, 2018). The pods should be harvested in a timely manner and at the highest price point on the market. The pods should be well filled during harvest (Baswana and Rana, 2007). Delays in selecting pods adversely affect the quality of pods and the colour of the pods also disappears. Beans are usually harvested 4-5 times over a period of 7-10 days. However, in dry climates, the entire crop is harvested only 2-3 times a day. Under organic farming conditions, the average production of early varieties is 50-60 q / ha and seasonal varieties are 120-150 q / ha (Ross *et al.*, 2018). The First varieties produce about 3,000 to 4,000 kg of raw pods per hectare. The mid-season and the latest varieties produce about 6,000 to 7,000 kg of green pods per hectare.

**Storage:** Peas are easily heated for storage. Fresh shellfish peas are stored at 0 ° C and 90-95% RH for two weeks. The pods hold -10 ° C. Shelling percentages range from 35-50%.

**Pests and Diseases:** The major insects are Stem fly, Pea aphid, Leaf miner, Pod borer. Wilt, Root-rot, Powdery mildew, Rust, Ascochyta blight, Pod rot diseases are the main diseases which occurs in Pea plant (Doolittle and Jones, 1925).

### Pest Incident

**Pod borer:** *Heliothes* sp.

**Symptoms:** The caterpillar eats the leaves and pods. It damages shoots, flowers and pods.

**Management:** Use of organic pesticide BTK (*Bacillus thuringiensis kurstaki*)

**Pea aphid:** *Acyrtosiphon pisum*

**Symptoms:** Adults and nymphs shrink in leaves. The leaves turn blue and wither.

**Management:** Use organic pesticide BTK (*Bacillus thuringiensis kurstaki*).

### Disease Incident

**Powdery mildew:** *Erysiphe polygon* (Grunwald *et al.*, 2004)

**Symptoms:** It looks like leaves and pods. The first small areas are slightly darker, later becomes powdery white spots. The spots grow and cover the entire surface of the leaves. Infected leaves become chlorotic and distorted.

**Management:** Adding of inorganic sulphur to 0.25%.

### Etnobotanical Uses of Pea

Garden pea is a World Wide cultivated food crop, including edible peas and field peas. Its seeds, specially the oil protect the offspring. Powdery mildew can cause skin irritation and acne. The flowers are eaten in a green area. More than 10-15 cm (4-6) peanut butter toppings are used in salads, stir-fries, and as a garnish for traditional Chinese cuisine. From the study of pea vine edible comes the following trick: the strands are removed before cooking/ preparing the pea vines like vegetables. Taiwanese saying: "tendrils tie your tongue" (Zavinon and Adoukonou-Sagbadia, 2019). Dried seeds are used for human and animal use. It first cooked as a whole, then separated or ground into flour and then boiled or roasted. A large amount is in cans. Fresh peas are an important vegetable and in the unripe state are canned or frozen. Some cultivars are planted with their green pods.

Crops are also suitable as fodder, sage and green manure. Peas are planted with fresh green seeds, leaves, green pods and dried seeds. It is used as food sources i.e., can be eaten directly or can be cooked as a vegetable. It can be sold as fresh, canned, or frozen peas while ripe dried peas can be used as whole, separated, or made into flour. Dried peas are eaten

separately as dried, boiled, roasted or dahl in some regions of the World. It is the first colour used mainly in the UK and USA. In some parts of Asia and Africa, their leaves are used as vegetable. In Burma and parts of Africa, Pot herb is made from their leaves. These can be planted with pods that are green and can be eaten cooked or raw. Ripe seeds oil has anti-sex hormonal activity; it helps in the production of sperm which counteracts the male hormones effect. Depending upon pea protein digestion, peas and faba beans natural protein is digested completely in the small intestine. One of the food items is prepared by adding peas all night and frying them in palm oil or mixing them with other foods such as rice flour before frying to give it a different flavour. Another food item is made by carefully grinding the peas and then releasing it under pressure to form a different shape. Various conditions are fried, seasoned and mixed. The most common type of seed varieties are 'Alaska', 'Super Alaska', 'Super Green,' and 'Alaska Wilt Resistant'. In UK, snack items are used in reconstruction and cans. These are packed into two categories: Alaska and sweets. Early Complete, "Ace" and "Wasatch". The nearest crop variety ripens approximately 14 days after perfect Alaska and its varieties such as Perfection Green-green, "Bridget", "Superior", "New Era, 'ëPugetí and' Shoshone were grown. Some new varieties have been introduced for production in the US and abroad. This usually have a firmer skin that is firm during installation. The use of a home garden, 'Little Marvel,' 'Laxton Progress,' 'World's Record,' 'Wando' is maintained well in very hot condition (Renna *et al.*, 2012).

### Medicinal Use

Eating raw seeds might cause diarrhea. Flour is regarded as a mollient and a solvent used as a cataplasm in Spain. Various studies observed that the seeds contain trypsin and chymotrypsin which helps in contraception, ecobolic, fungistatic and spermicide (Powers and Thavarajah, 2019).

### Conclusion

The review study on organic fertilizer and nutrient content of garden pea gives a description of the use of organic fertilizers. Organic fertilizers often act as a soil supplement based on natural resources which ensures a small amount of nitrogen, phosphate and potash. This paper clearly showed that the compost

improve the growth and yield of pea plant. Foliar fertilization is a combination of nutrients which is important alongside the common fertilizers to increase pea harvestment, especially under soil conditions. The application of organic fertilizers like manures, plant residues, composts, green manures, peat, lime etc. give rise a sustainable production along with the increase in soil fertility. Plants often meet their nutritional needs to grow by absorbing nutrients from the soil, water and carbon dioxide, in addition to the required sunlight. So in this review paper, it is obtained that organic fertilizer plays a vital role for a plant to meet their better nutrition while compost helps in improving the growth and yield of pea plants than other things like only soil, soil and compost, soil and NPK. Foliar fertilizers along with nutrients play an important role in increasing the harvestment of pea under the sandy soil conditions.

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