1- Organic Vegetable Crop Production.

Organic farming serves as a comprehensive approach to agricultural management, prioritizing the well-being of agro ecosystems, including biodiversity, biological cycles, and soil health. This approach is seen as a promising and effective strategy for sustainable agriculture within a circular and environmentally friendly economy. Recent years have witnessed a growing demand for organic vegetables due to their sensory attributes, superior nutritional content, and reduced risks associated with harmful chemical residues. Current scientific research underscores the significant elements responsible for successful organic vegetable cultivation, encompassing plant materials, soil maintenance, crop nutrition, soil sanitation and crop management, as well as strategies for pest, disease, and weed control.

Organic farming methods combine scientific knowledge of ecology and modern technology with traditional farming practices based on naturally occurring biological processes. The major farming techniques of organic farming include:

1. Crop Rotation
2. Green Manuring
3. Composting
4. Vermicomposting
5. Mulching
6. Plant Protection Practices
    a. Cultural practices
    b. Inter cropping and trap crops
    c. Mixed Cropping
    d. Growing disease resistant varieties

Other natural practices include

1. Flooding
2. Exclusion of pathogen
3. Application of organic amendments
4. Physical methods
5. Application of biocontrol agents
6. Using Biodyanamic liquid pesticides
7. Manipulation in Sowing Dates
8. Elimination of Host Plants Summer Ploughing

1. Crop Rotation

Crop rotation is a long-established, successful agricultural practice. Continuous cropping of plants in the same botanical family allows for buildup of disease organisms. Vegetables that are in the same botanical family should not be grown in the same area for at least three years. For example, watermelon, cucumber, squash, cantaloupe and pumpkins are in the Cucurbitaceae family and often are attacked by the same disease organisms. Rotating curcurbi ts with vegetables in the Solanaceae family such as peppers, tomatoes, eggplants or potatoes can potentially lower the incidence of diseases.

2. Green Manuring

Green manures help build soil quality. Green manures are cover crops that are plowed into the soil to provide nitrogen to the succeeding vegetable crop.

a. Improve the soil fertility, including adding valuable nitrogen

b. Improve the soil structure, giving better drainage or water retention

c. Suppress weeds

d. Attract beneficial insects and other predators

3. Composting

If manure is not readily available, compost can be made from lawn clippings, leaves and other plant materials. Composting organic matter stabilizes nitrogen and kills pathogens and weed seeds, and enables the use of materials, such as raw manure and sawdust, that should not be applied directly to growing vegetables.

Adding compost to soils improves soil structure, increases the population of beneficial microbes, increases soil moisture retention, reduces nutrient loss, boosts pH and can suppress certain diseases. Most compost contains 1 to 3 percent nitrogen. Generally, compost is applied 4 to 8 tons per acre in field vegetable production, and 10 to 20 tons per acre (1 to 2 pounds per square foot) in gardens for soil development, with 0.5 to 1 pound per square foot applied for soil fertility maintenance. For detailed information on making compost.

4. Vermicomposting

Vermicompost is the product or process of composting using various worms, usually red wigglers, white worms, and other earthworms, to create a heterogeneous mixture of decomposing vegetable or food waste, bedding materials, and vermicast, which are also called worm castings, worm humus or worm manure. It is the end-product of the breakdown of organic matter by an earthworm. These castings have

been shown to contain reduced levels of contaminants and a higher saturation of nutrients than do organic materials before vermicomposting.

Containing water-soluble nutrients, vermicompost is an excellent, nutrient-rich organic fertilizer and soil conditioner.

5. Mulching

Organic mulches such as straw, hay, compost, newspaper or wood shavings will aid in disease prevention by reducing direct contact between soil and the plant. Mulch thickness should be 4 to 6 inches. Many soil-borne diseases infect the plant from rain-splashed soil on the lower leaves. Organic mulches usually lower soil temperatures. Thus, warm-season vegetables such as tomatoes and peppers should be mulched only after the soil has warmed. Plastic mulches also can be used by organic growers. Plastic mulches are available in a variety of colors and are particularly effective in warming the soil. Black plastic is the most commonly used plastic mulch for spring and early summer vegetables in Missouri. Infrared-transmitting (IRT) plastic mulch allows certain wavelengths to penetrate the plastic, increasing the soil temperature significantly more than black plastic mulch. Growers wishing to plant later in the summer can use white plastic to keep the soil cooler. When plastic mulch is used, water must be supplied by a drip tube or soaker hose under the plastic.

6. Plant Protection Practices