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Title: EFFECT OF COMBINATION OF ORGANIC AND INORGANIC FERTILIZERS ON YIELD AND QUALITY OF TOMATO  
(Lycopersicon esculentum Mill.)

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**Abstract:** Vegetables play a very important role in the human diet, supplementing some of the nutrients in which other food materials are deficient, tomato which is grown throughout the year in this area has become costly due to low production and high disease and pest incidence. In Jharkhand though fertilizer consumption is less but the bad effects of adding chemical fertilizers is being exhibited by crop stand. As a result, soil becomes poor in humus and organic matter and shows less yield. This production can be increased by improving soil condition by using optimum dose of organic and inorganic fertilizers. The experiment entitled "Effect of combination of organic and inorganic fertilizers on yield and quality of tomato"(Lycopersicon esculentum Mill.) was conducted during the rabi season (January 2006- April 2006) at Vegetable section of Horticulture Department under the Faculty of Agriculture, Birsa Agricultural University, Kanke, Ranchi. Different doses of organic manures (Growthmin, Poultry Manure and FYM) were applied to soil fifteen days prior to transplanting and inorganic fertilizers were applied just before the transplanting. Organic manure (VG) was applied @375,500 and 625Kg/ha in three doses (100%, 75% and 50%), Poultry Manure @ 625Kg/ha, FYM@200q/ha and NPK@100:60:60Kg/ha in different combinations of organic manures and inorganic fertilizers. Altogether, the experiment was laid out in randomized block design consisted of 12 treatments and replicated three times. The growth attributes were recorded at 60, 75 and 90 days after transplanting. With regards to the height of the plant at 90 days, the treatments were found to be significant and the plant height was recorded highest (79.06cm) in 100% RDF + Organic manure (VG) @ 375Kg/ha. The maximum number of branches (9.3) was observed in 50% RDF + Organic manure (VG)@375 Kg/ha. The number of days taken for first flowering was earliest in 75% RDF + Organic manure (VG)@375Kg/ha (44.66 days). The days taken for first fruiting was earliest in 100%RDF+Organic manure (VG)@500Kg/ha, 75%RDF+Organic manure (VG)@625Kg/ha (51.66 days), respectively. Among the yield attributing characters like number of fruits per plant, weight of individual fruit (g) weight of fruits per plant (Kg), yield per plot (Kg) and yield/ha (q) were significantly influenced by applying different doses of organic manures and fertilizers. The maximum number of fruit (21.46), maximum weight of individual fruit (69.23g) and diameter (3.86 and 5.0 cm)respectively were found in RDF + FYM@200q/ha while the weight of fruits/plant (Kg) was recorded maximum in 100% RDF + Poultry manure @625 Kg/ha (1.58 Kg). Yield/plot (Kg) and yield/ha(q) were significantly superior in 100% RDF + Organic manure (VG)@375 Kg/ha i.e., 33.21 Kg and 330.3q over the others. The quality attributing characters i.e., Total soluble solids and shelf - life are important for processing. The T.S.S was significantly affected from 50% RDF + Organic manure (VG)@500Kg/ha and observed maximum (4.80). The maximum shelf -life of tomato fruit was recorded in 100% RDF + Organic manure (VG)@375 Kg/ha and RDF + FYM@200q/ha (7.3 days). In calculation of economics of cultivation application of 100% RDF + Poultry manure@625 Kg/ha gave maximum benefit/cost ratio of 3.58 and followed by 100% RDF + Organic manure (VG)@375 Kg/ha i.e., 3.46. When RDF + FYM@200q/ha was applied the benefit/cost ratio was 2.54. From these observations at this investigation, it can be concluded that 100% RDF + Organic manure (VG)@375 Kg/ha (T1) and 100% RDF + Poultry manure@625 Kg/ha (T10) can be used profitably. Alternatively, RDF + FYM@200q /ha can be recommended to farmers which is profitable as well as easily available for Pusa Ruby variety of tomato in Jharkhand region.

**Description:** EFFECT OF COMBINATION OF ORGANIC AND INORGANIC FERTILIZERS ON YIELD AND QUALITY OF TOMATO (Lycopersicon esculentum Mill.)

**Subject:** Horticulture

**Theme:** EFFECT OF COMBINATION OF ORGANIC AND INORGANIC FERTILIZERS ON YIELD AND QUALITY OF TOMATO (Lycopersicon esculentum Mill.)

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