

Quality and Flavor Profile Following Various Pesticide Inputs in Peanut (*Arachis hypogaea* L.) Grown in North Carolina

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Consumer interest in organically grown products is increasing nation and worldwide and there is an opportunity for growth for organic legume production, especially peanut. The purpose of this research is to investigate the impact various pesticide treatment types have on pest and disease infestations and the flavor profile for the Virginia market type cultivar Sullivan under simulated organic and conventional production systems. Peanut at both locations was planted in late May and treatments consisted of two levels of seeding rate/fungicide seed treatment, two levels of insecticide, and three levels of fungicide. For the purpose of this summary, the best management practice for low pesticide input system simulating insect and disease management in organic production and the best management practice for conventional production are compared. Weeds were controlled using herbicides. For the simulated organic production system, fungicide was not applied to the seed, no insecticides were used and seeds were planted at a rate of 175 lbs/acre. In the conventional production system, seed was treated with fungicide and planted at a rate of 135 lbs/acre with insecticides applied three weeks after planting to control tobacco thrips and at mid-season to control southern corn rootworm. The experimental design was a randomized complete block with treatments replicated four times.

Data for peanut population, canopy width, thrips injury, potato leafhopper burn, pod yield, and market grade characteristics were recorded. The interaction of location by treatment was not significant for most measurements. Significant differences ($p < 0.05$) for the production systems were noted for plant population, canopy width, thrips injury, and pod yield. Plant population and canopy widths were greater in the conventional production system than in the simulated organic system while thrips injury was lower in the conventional production system than in the simulated organic system. Pod yield was 3,620 lbs/acre and 4,310 lbs/acre in the simulated organic and conventional systems respectively. The sound mature kernel fraction was retained and used for sensory evaluation by a trained descriptive analysis panel of 5 – 7 people. The flavor attributes evaluated by the panel included: roast peanutty, sweet aromatic, dark roast, raw beany, woody/hulls/skins, sweet taste, bitter taste and astringency.