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ACRIGURE

Evaluation of Sunflower (Helianthus annuus L.) Cultivars for Cut Flowers. CHRISTOPHER G. FERGUSON, MARTIN J. STONE, and ELMER GRAY, Department of Agriculture, Western Kentucky University, Bowling Green, KY 42101.

The sunflower (Helianthus annuus L.), an ancient cultivated crop for oilseed production, more recently has gained acceptance as a cut flower in the florist industry. Objectives of the present study were to survey available sunflower cultivars for adaptability to Kentucky growing conditions and for suitability to local florist markets. In 2011, sunflower cultivar trials were conducted at Bowling Green (36.93 N, 86.47 W) and Owensboro (37.78 N, 87.14 W) Kentucky. The randomized complete block design included 18 diverse cultivars and three replications. An experimental unit consisted of 10 plants of each cultivar spaced 30 × 60 cm. apart. Data were collected on seedling emergence, days to flowering, plant height, head diameter, stem diameter, branching, petal color, pollen production, and vase life. Twice weekly harvests of flowering heads began 29 July and continued through mid-September resulting in 9 and 10 harvests in Bowling Green and Owensboro, respectively. Flowering heads were evaluated by both lay and professional groups. The data on plant and head characteristics are being stratified to determine the most adapted cultivars for growing in Kentucky and the ones most acceptable by the florist industry.

Effect of Tassel Removal for Baby Corn Production in Kentucky. CHRISTOPHER G. FERGUSON*, ZHENG WANG, MARTIN STONE, and ELMER GRAY, Department of Agriculture, Western Kentucky University, Bowling Green, KY 42101-3576.

Baby corn (Zea mays L.) consists of unfertilized young ears harvested at silk emergence. The 2011 study was a culmination of four successive years of production and evaluation of baby corn at Western Kentucky University (36.93 N, 86.47 W). The objective was to compare the effect of tassel removal on baby corn (BC) production on four cultivars, two field (‘N77P-3000GT’, ‘N68B-3000GT’) and two sweet (‘Silver Queen’, ‘Peaches N Cream’) corns. Results indicated that tassel removal gave significant increases (P < 0.01) of BC ears across harvests (H) and cultivars; however, the effect was not consistent over treatments. For harvests, the difference due to detasseling was highly significant (P < 0.01) for H1, significant (P < 0.05) for H2 and H3, but not significant (P > 0.05) for H4. For cultivars, numerical values were higher for detasseled than non-detasseled treatments in the first three harvests for each cultivar, but significant (P < 0.05) only for Peaches N Cream. Quality of BC from both tassel treatments decreased in H3 and H4. Further study is needed to determine economic returns of detasseling BC.

Developing a Biofilter for Remediation of Pesticide Residues in Runoff Water. GEORGE ANTONIOUS, College of Agriculture, Food Science, and Sustainable Systems, Department of Plant and Soil Sciences, Kentucky State University, Frankfort, KY 40601.

Bioremediation is the use of living organisms, primarily microorganisms, to degrade environmental contaminants into less toxic forms. Nine biobeds (ground cavity filled with a mixture of composted organic matter, topsoil, and a surface grass) were established at Kentucky State University research farm (Franklin County, KY) to study the impact of this practice on reducing surface runoff water contamination by residues of dimethazone and trifluralin herbicides arising from an agricultural field. Biofilter systems were installed at the bottom of the slope of specially designed runoff plots to examine herbicides retention and degradation before entering streams and rivers. In addition to biofilter systems, three soil management practices: i) municipal sewage sludge (SS), ii) SS mixed with yard waste compost (SS + YW), and iii) no-mulch rototilled bare soil (NM used for comparison purposes) were used to monitor the impact of soil amendments on pesticide residues in soil following natural rainfall events. Organic amendments increased soil organic matter content and herbicide residues retained in soil following rainfall events. Organic amendments increased soil organic matter content and herbicide residues retained in soil following rainfall events. Biofilters installed in NM soil reduced dimethazone and trifluralin by 84 and 82%, respectively, in runoff water that would have been transported down the land slope of agricultural fields and contaminate natural water resources. Biobeds installed in SS and SS + YW treatments reduced dimethazone by 65 and 46% and trifluralin by 52 and 79%, respectively. The use of biofilters in on-farm bioremediation of pesticide residues in surface runoff water might provide a potential solution to contaminated runoff and seepage water arising from agricultural production operations.

Evaluation of Constructed Wetlands for Nitrate and Phosphorus Removal. ERIC T. TURLEY*, and GEORGE F. ANTONIOUS, College of Agriculture, Food Science, and Sustainable Systems, Department of Plant and Soil Sciences, Kentucky State University, Frankfort, KY 40601.

Constructed wetlands are designed and utilized to reduce or eliminate the effect of agrochemicals on water...