From Garden to Garment. By Kathlyn Swantko

Natural Dyestuffs Bloom Through Research Conducted at Kansas State

With a passion for gardening and artistic printing, a love for flowers and an academic interest in the textile research, Sherry Haar, associate professor of apparel and textiles at Kansas State University, is on a mission to grow, harvest, create surface design and conduct scientific experiments in natural dyes.

Haar's innovative sustainability research sustainability research is focused in the areas of education and consumer behavior, and all of the students under Haar's direction on the team are involved with research on natural dyes. Her team consists of three graduate students and one undergraduate student.

In explaining her choice of research, Haar states, "I became an active participant in Kansas State University's sustainability efforts in 2007 when I made the switch to natural dyes. This aligned my department of apparel, textiles and interior design to formalize my goals on enhancing sustainability across the curriculum of my academic work. Working with natural dyes allows me to satisfy and address my profound excitement for designing, gardening, and researching."

Working with other professors and colleagues in Kansas States' department of horticulture, forestry and recreational services, has generated additional interest in creating flower and plant dyestuffs. Because of Haar's work, Kansas State's farm now grows dye plants for research purposes. Haar's sustainability program is partially funded through Kansas State University's Agricultural Research Experiment Station.

One of the major focuses of Haar's research on plant and flower dyestuffs focuses on the proper preparation of the fabric to increase the bond between the dye and the fiber. The range fibers used in the research include cotton, silk, wool, bamboo, hemp, Tencel and soybean.

Haar explained, "A mordant or chemical treatment is applied to the fiber to increase the molecular bond between the dye and the fiber. For protein fibers we use potassium aluminum sulfate and for cellulose we use aluminum acetate. We also constantly examine post-treatment options. The tests we are performing on the naturally dyed fabrics are those appropriate for apparel and decorative art, which includes colorfastness to light and laundering, staining, and the effects of perspiration."

Haar has been trading information with Dr. Rhonda Janke, associate professor in the department of horticulture, forestry, and recreational services, for the past few years. With Janke's expertise in alternative and sustainable crops, the two professors exchange resources as a way of spreading knowledge in the form of sharing seeds, plants, and greenhouse space, as well as providing workshops, tours, and dyeing services. While their collaborations are currently informal, Haar foresees that they will be formalizing their research projects in the near future.

Today, natural dyes are being utilized in niche street markets around the globe, and are used in a variety of areas, ranging from wearable art in street apparel to eco-luxury interior design products. While Haar would like to see the use of sustainable dyes grow, there are potential problems.

She notes, "In order to become commercial in a broader way, vast quantities of plant material for natural dyes would be needed, which poses a problem of inadequate sources for these materials. However, there is room and interest for limited growth in the marketplace, and the interest is international. Last spring, I took two students and presented our research to 524 participants from 56 countries at the International Symposium and Exhibition on Natural Dyes in La Rochelle, France."

According to Haar, the goals of her research are both artistic and scientific. "Artistically, I will continue to explore techniques such as hammering, bundling, screen-printing, and using physical resist methods to create surface design from native plants," she explained. "Scientifically, I will examine methods like pre- and post\-treatments for colorfastness and extraction through solar and decomposition techniques." ●

For more information on Kansas State University's sustainable research on utilizing flower/plant dyeing processes, contact Dr. Sherry Haar, haar@ksu.edu, or 785-532-1309.

From the Garden: Garments feature bundling and hammering techniques. The variegated backgrounds resulted from bundling fresh plants.

Kathlyn Swantko, president of the FabricLink Network, created TheTechnicalCenter.com for Industry networking and marketing of specialty textiles, and FabricLink.com for consumer education about everything fabric.