

Progress Report for NCR-SARE

Youth Educator Grant Project #YENC12-047

Submitted By Dave Galer, U.S. Army Garrison-Detroit Arsenal

April 30th, 2013

April-June, 2012

- Installed two sixty-gallon rainwater collectors on the downspouts of the Child Development Center (CDC) at the Detroit Arsenal



- Built four 4'x8'x12" raised beds for the cultivation of various vegetables which included tomatoes, peppers, broccoli, spinach, cabbage, kohlrabi and onions. Two sets of 2 beds each were planted with identical plants, with the intention of watering one set primarily with tap water and the other set primarily with rainwater, to determine if there were any observable advantages of rainwater to tap water or vice-versa. Unfortunately, the drought conditions prevalent throughout June and early July precluded this endeavor. However, from mid-July on rainwater was used extensively in the

irrigation systems described below in all of the vegetable beds, from which we were at least able to ascertain that rainwater certainly did the plants no harm

- Planted Nasturtium around the perimeters of the vegetable beds to introduce students to edible flowers



- Installed gravity fed drip irrigation systems in the vegetable beds to be supplied by the rainwater collectors. Initially this is to be done manually, i.e. drawing buckets of rainwater from the spigots of the collectors and pouring it into the reservoirs of the irrigation systems



- Reopened and created the theme gardens and flower gardens at the CDC, which included a 4'x8' square-foot garden in the form of an ABCs garden comprised of herbs (mostly); a pizza garden with a hula-hoop wrapped in tan duct tape as the crust, with gardener's twine tied across the hoop forming the slices, and each slice planted with a pizza ingredient, i.e., a tomato plant, onions, oregano, garlic, green peppers, and yellow marigolds to represent cheese; a sunflower "prairie house" made of two 12' long rows of sunflower plants which are tied together at the top when they mature to form a play tunnel, with the seeds to be harvested at the end of the season to make home-made "sunbutter"; and an American Flag garden



- This season's central theme was "The Very Hungry Caterpillar," so our youth designed and constructed a caterpillar garden and a butterfly garden. The caterpillar garden was made out of old tires used in last season's theme, "Mr. & Mrs. Potato Head & Tater Tot". The head of the caterpillar was made of plywood screwed into a tire. Holes were cut for the eyes, in which rubber balls with an eyeball design on them were placed, allowing the children to pop them out and play with them. Holes also were cut out for the antennae,

out of which long tubes protruded which could be pulled out and when swung in a circle made a whistling noise. A butterfly garden was constructed out of paver stones in the shape of a butterfly. Both the caterpillar and the butterfly were planted with a butterfly attracting mix of wildflowers



July-August, 2012

- Monitored the effects of using rainwater to irrigate the vegetable beds
- Maintained the gardens and harvested the produce which was used to facilitate our summer camp menus



September, 2012 - April, 2013

- With 4-H Volunteer Advanced Master Gardener Educator Anne Crotser, started a gardening education program with our kindergarten class at the CDC we call “Kindergardening”, which is held 1 hour per week throughout the school year. Developed lesson plans for this program which can be utilized by military installations around the world
- Erected two full-scale models of horizontal shaft windmills, one at the CDC gardens to determine feasibility of wind power at the site and one at the Middle School Teen (MST) afterschool program with which to study and tinker
- Planned, constructed, planted and replanted the gardens for this season, including a train planter box for this season’s theme, “The Little Engine That Could”

May, 2013 - April, 2014

- We have decided on a windmill design we intend to use, which is a modification of the Savonius vertical shaft design. We will begin construction of the first of two working windmills at the CDC in June and if all goes well will have the second windmill built by the end of summer to be utilized at another garden site next season

- This fall we will evaluate our windmill and irrigation system designs, tweek as necessary, and utilize them to provide irrigation at both of our garden sites for the 2014 season
- MST Youth will create an audio-visual documentary of the project inception to completion for submission to IMCOM Central Region and to the University of Minnesota, NCR-SARE
- Final Report of Youth Educator Grant Project #YENC12-047 to be submitted to NCR-SARE April 30th, 2014

Design and construction of the gardens, drip irrigation systems and windmills has been performed by the AWESOME youth members of the Detroit Arsenal MST 4-H G.R.E.E.N. Team (Growing Responsible Environmental Engineers Naturally)



Dave Galer
MST Child Youth Program Assistant
U.S. Army Garrison-Detroit Arsenal

