

## Using the Cultivating Learning with School Gardens Curriculum in Burundi, Africa

### Abstract

University faculty and Extension educators sought to use school gardens in Burundi, Africa, as a means of reducing food insecurity, teaching positive youth development, and increasing experiential learning for Burundian students. Washington State University personnel used videoconferencing to provide training to Burundian nongovernmental organization (NGO) staff on the Cultivating Learning with School Gardens curriculum. The NGO staff then trained teachers in pilot programs at four Burundian schools, where first harvests occurred in May 2016. An agricultural consultant also helped with the gardens. Suggestions for implementation of this school garden curriculum in other countries are provided.

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### Introduction

It is no surprise to U.S. Extension and primary and secondary school educators that the use of school gardens has continued to increase (Selmer, Luna, & Rye, 2015). The benefits of garden-based learning include increased food literacy, improved eating habits, increased interest in school and learning, additional parental involvement, development of a sense of community, and increased positive attitudes toward the environment (Williams & Dixon, 2013). School gardens also are used to increase learning in science, technology, engineering, and math and to improve health-related student outcomes such as increased consumption of fruits and vegetables (Berezowitz, Yoder, & Schoeller, 2015). Rodriguez, Lamm, Odera, Owens, and Thompson (2015) assessed the impact of Extension-led school gardens from the students' perspective and found that students felt more knowledgeable about vegetables, how vegetables grow, and why they are important to health and reported experiencing enjoyment from learning outside.

School gardening also has become more popular around the world (Ohly et al., 2016), and it is easy to find literature that reviews school gardening practices in areas such as the United Kingdom, New Zealand, and Australia. However, finding information about school gardening programs in other countries is difficult. This is

especially surprising given that Crave et al. (2009) developed the Cultivating Learning with School Gardens (CLSG) curriculum (<https://agricorps.org/school-garden-curriculum/>), which was pilot tested and used in Democratic Republic of the Congo and Rwanda.

In the United States, oftentimes school gardens are developed by an Extension educator who works closely with school teachers and children. Lockett, Moore, and Wingenbach (2014) suggested that it is important that students are educated on issues related to "the complexity and severity of world hunger, our global interdependence, world resource distribution and consumption, and an appreciation for world diversity" (para. 1). One step in this direction is implementing school gardens internationally. In the Washington State University 4-H program, we are working with partners in Burundi, Africa, one of the poorest countries in the world, to grow school gardens. In Burundi, where food insecurity is prevalent and a history of civil unrest exists (Headrick, 2016), there is a tremendous need for building positive youth development in addition to producing food through school gardens. Thus, we developed an adaptation of the CLSG curriculum for use in Burundi; embedded in the adapted curriculum is the philosophy of 4-H, including positive youth development and the 4-H Essential Elements.

## Tool of the Trade: The CLSG Curriculum

CLSG was instigated in 2005 with USAID funding. The U.S. Department of Agriculture, in partnerships with land-grant universities, developed and pilot tested the curriculum in the Congo and Rwanda (Crave et al., 2009). The program involved training teachers to use gardens as a classroom teaching tool, incorporating the gardens into social and physical science lessons. The gardens also complemented school feeding programs and involved the community in garden management.

CLSG includes resources for students, teachers, and teacher trainers. Experiential education methods are used to teach science and other subjects through hands-on activities in the garden. The curriculum materials are translated into several languages (see Table 1). As needs arose, additional resources, such as 17 lesson guides and a training-of-trainers manual, were added.

Originally, we planned to travel to Burundi to conduct two 1-week sessions of teacher training and hands-on practice with the curriculum and positive youth development techniques. However, political unrest prevented us from traveling, so we turned to videoconferencing to train our nongovernmental organization (NGO) partner staff, who would then train local teachers. We used the training-of-trainers manual to teach implementation of CLSG, positive youth development concepts, and experiential education techniques. We divided the manual into short sessions that we taught during monthly videoconferences. We focused on basic garden design, plant selection, soil testing, community involvement, and the 4-H Essential Elements. The lesson guides are being translated into Kirundi, the local language, as requested by the teachers.

**Table 1.**

Translation of the Cultivating Learning with School Gardens Curriculum

<b>Component</b>	<b>English</b>	<b>French</b>	<b>Portuguese</b>	<b>Swahili</b>	<b>Kinyarwanda</b>	<b>Kirundi</b>
Teacher manual	X	X				Xa
Student manual	X		X	Xb		

Pocket guide	X	X	X <sup>c</sup>
Lesson guides	X		X <sup>a</sup>
Visual aids (posters, flash cards)	X	X	X
Training-of-trainers manual	X		X

<sup>a</sup>In progress. <sup>b</sup>Gardening Game only from student manual. <sup>c</sup>Text-only version of pocket guide.

Following the trainings, NGO staff and an agricultural consultant visited each school to help with implementation of the curriculum. Four schools planted gardens in January 2016. Inconsistent rain ruined several of the crops, and the harvests were meager, but youths learned about gardening. Strategies were developed to address problems with the gardens, such as making organic pesticides, testing the soil to discover what should be added to make it more fertile, and securing funding to pay for water catchment systems.

An important part of the school garden is community involvement in garden management. A committee of school representatives, community members, and students come together to manage the garden and garner community support and involvement. An open-door event was held at one school garden in July 2016 to draw community members to the garden. Youths and teachers from the school led cultural activities and shared food from the garden with over 700 guests. Community engagement is a key element in the sustainability of the gardens.

Evaluations of the videoconference trainings that U.S. faculty conducted with Burundian trainers showed evidence of effectiveness. Further, teachers in Burundi were asked to assess the training they received, the progression of the gardens, and the resources they obtained. Ongoing evaluation has suggested that the curriculum and training are successful and easy to use and that continued professional development is important.

## Suggestions for Implementation in Other Countries

On the basis of our experience, we can make several suggestions for implement the CLSG curriculum in other countries.

- Identify key persons in the United States and the country of origin who can provide context for cultural appropriateness of the curriculum and the delivery methods.
- Secure funding for more than 1 year to improve sustainability.
- Build trust with the local community to increase the success of the gardens (e.g., form a garden management committee).

- Empower local partners and those involved with the gardens to ensure ownership of the gardens.
- Develop clear plans and expectations for implementation and evaluation between partners from both countries.
- Communicate regularly and often with all team members.
- Be geographically specific. (For example, we started with pilot programs in four schools in one region of one country.)
- Continue providing professional development for teachers to ensure continued success of school garden programs (Cater, Fox, & Fletcher, 2012). Programs can succeed only if teachers are confident in their ability to successfully implement the lesson plans.

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