Fertilizer Research and Education Program (FREP) Project Proposal

A. Cover Page

1. Project Leaders

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2. Cooperators

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3. Supporters

Jean Landeen, Coordinator of Agriculture Literacy and Awareness, California Department of Education (CDE): The purpose of CDE is to lead and support the continuous improvement of student achievement, with a specific focus on closing achievement gaps. This project aims to provide standards-based, science-focused resources for elementary and middle-school educators, as well as professional development tools and trainings. The objectives of this project will indeed support CDE's core purpose of increasing student achievement and closing achievement gaps.

Rick Phillips, JR Simplot: Is one of the largest privately held international food processing and agricultural companies in the world. Simplot is a major fertilizer producer in the United States, and continually addresses environmental matters. Simplot appreciates the work of foundations and professional educators to help future generations learn about soil health, and the important role plant nutrients play in protecting and enhancing the global food supply.

4. CDFA Funding Request Amount/Other Funding

a. Funding request: $39,452 (2012) and $49,522 (2013)
b. If selected to receive FREP funds, California Foundation for Agriculture in the Classroom will provide $7,195 in matching funds to successfully complete the proposed project.
c. The Nutrients for Life Foundation has committed a $6,000 in-kind donation towards this proposed project. (see attached cooperator letter)

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B. Executive Summary

1. Problem
California is the leading agricultural producer in the United States. As our population increases and farmland disappears to commercial and residential development, it is becoming increasingly important for farmers and ranchers to produce food, clothing, forest and floral products on less land for more people. Fertilizer plays a crucial role in improving agriculture efficiency. Students are part of our consumer population and will be our leaders and decision-makers in the future. It is essential, for the vitality of our industry, to educate young people about fertilizer's role in agriculture and empower them to make informed decisions as they mature to adults. There is a tremendous need for teacher resources that address the challenges facing agriculture and the plant nutrient industry's role in overcoming some of those challenges, our role in environmental stewardship and care, and the science behind agriculture production. The proposed curriculum will address these topics while meeting the Science Content Standards for California Public Schools including standards that emphasize environmental education.

2. Project objectives, approach and evaluation
The project objectives include the following:

- Update and align the already existing unit *How much is too much? How little is too little?* for grades 5-8.
- Develop an Educator's Guide aligning the Nutrients for Life Foundation's student activity book, "Fun with the Plant Nutrient Team" to Content Standards for California Public Schools with lesson ideas and extensions focusing on relationships between fertilizers, food, nutrition, and the environment for grades 2-4.
- Build upon previous 2010 FREP award to create a consistent thread of fertilizer materials for grades 2-12
- Increase student understanding of the essential role of plant nutrients in agriculture production.
- Enhance student appreciation of the agriculture industry's efforts to improve environmental stewardship.
- Encourage students to pursue a career in plant sciences.

Curriculum will be developed and updated by the project directors and a team of educators selected from CFAITC's extensive network, based on experience and expertise. Industry experts from supporting organizations, such as the California Fertilizer Foundation and Simplot will be invited to serve on the writing team. The selected group will review and discuss the topics to be addressed within the unit, investigate the facts, collaborate with other agriculture industry professionals, and will develop a rough draft of lesson plans. Following the development meeting, project directors oversee layout and design, pilot testing, technical review, proof editing and curriculum dissemination.

During development, the curriculum will be piloted in four California classrooms. Teachers who pilot the lesson will be asked to provide feedback via written questionnaire about the curriculum. This evaluation will be used to improve the resource and assure project success. Upon completion of the project, CFAITC will evaluate the project by means of an established annual survey. The online survey will be used to measure the project's stated objectives to: 1) Increase student understanding of the essential role of plant nutrients in agriculture production; 2) Enhance student appreciation of the agriculture industry's efforts to improve environmental stewardship and 3) Encourage students to pursue a career in plant sciences. Educators will access the survey online and be asked to evaluate many of CFAITC's programs, including the fertilizer curriculum.

3. Audience
Curriculum developed through FREP funds could potentially reach all of California's 293,000 educators. Materials will be available to all educators at no-cost, therefore providing an equal opportunity for all California elementary and middle school educators to benefit from this project. Teachers of students in grades two through four (educator's guide) and five through eight (updated unit) will be specifically targeted through standards alignment. This project also has the potential to reach those who know very little about food production in both rural and urban populations.

C. Justification

1. Problem
As a $34.8 billion industry, California continues to lead the nation in agriculture production. Challenges within the industry are numerous and California producers continually investigate the solution to a growing population and shrinking resources. With these challenges in mind, it is increasingly important for farmers and ranchers to produce food, clothing, forest and floral products on less land for more people. Fertilizer plays a crucial role in improving agriculture efficiency.

Students are a significant audience within our consumer population, and will be our leaders and decision-makers in the future. It is essential, for the vitality of our industry, to educate young people about fertilizer's role in agriculture and empower them to make informed decisions as they mature to adults. There is a tremendous need for teacher resources that address the challenges facing agriculture, and educate the public—in this case students in grades two through eight—about the delicate balance between maximizing production and minimizing environmental impacts, while meeting the science Content Standards for California Public Schools.

2. CDFA/FREP goals
The proposed project addresses the FREP key research area "education and public information." This project will fulfill this specific key research area by creating and implementing educational activities that result in adoption and appreciation of fertilizer management, practices and technologies. The development of educational material about the role fertilizer plays in our society will educate students, teachers and the general public about the relationships between fertilizers, food, nutrition and the environment.

3. Impact
Over the past 25 years, CFAITC has successfully developed and distributed curriculum to millions of educators. The proposed curriculum project will impact teachers, students, and consumers who will be exposed to materials that foster an appreciation for responsible agriculturists and the role plant nutrients play in agriculture production.

This project will significantly benefit teachers and students. Teachers across the nation will have unlimited, free access to the developed fertilizer curriculum. Developed by educators and reviewed by industry experts, the proposed curriculum will offer teachers a new, engaging way to teach problem-solving and critical thinking skills in all academic disciplines while familiarizing students with California's crop production. This project has the potential to impact all of California's 7 million public, private and charter school students. In 2010, CFAITC's most popular education unit reached 43,000 teachers. Undoubtedly, the updated curriculum (*How much is too much? How little is too little?*) and the new curriculum (*Educator's Guide to "Fun with Plant Nutrient Team"*) development will generate similar interest among educators.

This comprehensive outreach plan will provide a unified message to Californians on behalf of all California farmers and ranchers. Out of the state's 81,500 farms and ranches, many depend on fertilizers to maintain profitable production. California fruit, nut, floriculture, field and vegetable crops represent approximately $23 billion in market value. The quantitative value of a consumer-friendly outreach message is immeasurable.

4. Long-term solutions
With the goal to increase student understanding of the essential role of plant nutrients in agriculture production and enhance student appreciation of the agriculture industry's efforts to improve environmental stewardship, this project will provide subtle yet significant long-term progress towards solving industry challenges. By teaching students about plant nutrients, responsible application, and related benefits, students will achieve an accurate and broad knowledge base about agriculture production. California producers will benefit as "consumers-to-be" respond to positive outreach messages through their spending habits and decision making.

In addition, by familiarizing students with real-life educational experiences related to plant nutrients, environmental stewardship and agriculture production, this project aims to interest students in life science and encourage students to pursue careers in plant sciences. Long-term, the agriculture industry will benefit from an increased number of young people pursuing plant science-related degrees and beginning academic careers with an established foundation of knowledge.

5. Related research and education efforts
CFAITC utilized FREP funds in 1993 to develop and distribute three units- *What do Plants Need to Grow?* for grades 2-4, *How Much is too Much? How Little is too Little?* for grades 5-8, *The Interrelationships of Soil, Water, and Fertilizers and How They Affect Plant Growth* for grades 9-12. These units are still being downloaded today with more than 160,000 copies of the units downloaded over the past nine years.

In September 1994, CFAITC utilized FREP funds to produce and distribute *The Chemistry of Fertilizers*, a five-lesson unit teaching students to make their own fertilizer, analyze fertilizers for phosphate content and understand fertilizer labeling. This unit is still being used and supported today, with more than 3,000 copies downloaded from the CFAITC website in 2010.

The California Fertilizer Foundation provided funds in 2004 to develop Agriculture Fact Sheets for three main plant nutrients—nitrogen, phosphorous and potassium. These fact sheets explain basic information about the benefits of applying plant nutrients and the fertilizer industry, and provide activities and lesson plan ideas for teachers. In 2010, the Plant Nutrient Fact Sheets were download more than 8,000 times each, where the average downloads per fact sheet on other topics is 2,300 times. These statistics show that the Plant Nutrient Fact Sheets continue to be CFAITC's most popular fact sheet topic.

In 2007, CFAITC developed a 16-page newspaper tab, *What's Growin' On?* which also focused on fertilizer use and labeling. The newspaper was distributed to 500,000 students, educators and consumers, receiving praise for increased public understanding of fertilizers and agriculture.

CFAITC received a FREP grant in 2010 to create a new comprehensive unit on *Chemistry, Fertilizers and the Environment* for grades 8-12 and Update and align the already existing unit *What Do Plants Need to Grow?* for grades 2-4. This curriculum is in the process of being developed. The development meeting for the new unit has been scheduled for July 11-12, 2011. Although originally planned for May, team members chose the July dates as a better date for their teaching schedules. Teachers from Agriculture Chemistry and Ag Environmental Science have confirmed participation in the development of the new unit.

Based on CFAITC's experience with previous fertilizer education efforts, we can conclude that teachers are hungry for more information about this topic.

6. Contribution to knowledge base
This project will significantly increase the knowledge base of both teachers and students. The proposed development and expansion of fertilizer education lessons, within the broader context of the subject of chemistry, would serve as a powerful and informative means of connecting California students to the importance of plant health, as well as the agriculture industry in general.

Teachers and students alike will develop a greater knowledge base about plant nutrients, fertilizer use practices, and the care that goes into producing our abundant food supply. The target audience will also gain important knowledge about environmental education topics. At the same time, lessons will reinforce traditional academic knowledge and skills by addressing the content standards for California public schools. This project will provide a significant resource for the thousands of California educators curious about the science and technology behind agriculture production.

7. Grower use
The proposed project will greatly benefit growers. This comprehensive outreach plan strives to strengthen the educational infrastructure for California agriculture and provide a unified message on behalf of all California farmers and ranchers. Growers across the state will reap the benefits of increased student

understanding of the essential role of plant nutrients in agriculture production and enhanced student appreciation of the agriculture industry's efforts to protect our air, water and soil quality. Overtime, many of these informed decision makers will provide oversight to the industry, determine market trends and continue to share the positive story of California agriculture. The benefits derived from this project will transcend CFAITC and the grant period.

D. Objectives

1. Provide a clear, concise and complete statement of each specific educational objective, including outreach.

Objective: Update and align the already existing unit *How much is too much? How little is too little?* for grades 5-8.

FREP funds will provide the opportunity to update and align the unit, *How much is too much? How little is too little*? This unit stresses the need for balanced ecosystems and encourages students to look at factual information, make informative decisions, and develop critical thinking skills. The amount of downloads for this comprehensive unit has been increasing over the past three years. Although it has not been revised since 1993, the demand trend for this resource continues to increase over time. As a result of this FREP award teachers across all grade levels will have access to fertilizer education materials starting from second grade through twelfth. This will be a valuable tool for teachers, as schools continue to implement school gardens and call for resources to teach content standards while utilizing gardens. By updating the unit, teachers will have access to a current source of fact-based plant nutrient information. By aligning the unit to the Content Standards for California Public Schools, teachers will be able to implement the resource into classroom instruction and easily justify the academic disciplines reinforced.

The updated unit will be available for download on CFAITC's website, *www.LearnAboutAg.org.* In 2010, more than 90,000 lesson plans were downloaded for classroom use from the site. The updated unit will also be promoted in CFAITC's *Teacher Resource Guide* and *Cream of the Crop* monthly e-newsletter. In addition, the unit will also be disseminated at teacher workshops, conferences and in-services with assistance from FREP funds.

Objective: Develop an Educator's Guide aligning the Nutrients for Life Foundation's student activity book, "Fun with the Plant Nutrient Team" to Content Standards for California Public Schools for grades 2-4.

With permission already given from the Nutrients for Life Foundation to use their "Fun with the Plant Nutrient Team" student activity book, CFAITC will create an Educator's Guide with lesson ideas, extensions focusing on relationships between fertilizers, food, nutrition, and the environment aligning the activity book to Content Standards for California Public Schools for second through fourth grades. This Educator's Guide will be a beneficial tool to teach and emphasize science concepts involving plant nutrients and the benefits they provide to the world around the students. Teachers will be able to implement the engaging student activity book in the classroom because the newly created Educator's Guide will be aligned to content standards, provide lesson ideas and extensions to activities providing easy justification for reinforcing academic disciplines. Audiences benefiting from this new Educator's Guide include those who participate in agriculture/farm days, after school programs, home school, as well as in the traditional classroom setting.

These two project objectives will provide a comprehensive approach to increasing student knowledge, understanding and appreciation for plant nutrients and the hard working individuals who produce the world's food and fiber. By developing and implementing these two programs, CFAITC anticipates the following responses among student populations: increased understanding of the essential role of plant nutrients in agriculture production, enhanced appreciation of the agriculture industry's efforts to improve environmental stewardship, and greater interest in plant science-related careers. An ultimate benefit of this project is that students will experience a consistent thread of education about the relationship between fertilizers, food, and the environment beginning in 2nd grade through 12th grade (Grades 2-4 and grades 8-12 via 2010 FREP award).

E. Work Plans and Methods

1. Work plan

This is a two-year project. The first year (Table 1) will focus on updating *How much is too much? How little is too little?*, a middle school (grades 5-8) unit originally developed in 1993. The second year (Table 2) will dedicate funds to develop an Educator's Guide aligning the Nutrients for Life Foundation's student activity book, "Fun with the Plant Nutrient Team" to Content Standards for California Public Schools and dissemination of fertilizer curriculum (grades 2-4).

Table 1. 2012 Work Plan

Project Task	Completion Date	Product, Results, Measurable Outcomes
1. Receive funds for project	January 2012	N/A
2. Plan *How much is too much? How little is too little?* 2-day update/writing meeting	March 2012	N/A
3. Facilitate *How much is too much? How little is too little?* 2-day update/ writing meeting	May 2012	Rough draft of updated unit.
4. Organize *How much is too much? How little is too little?* and develop background information	June 2012	Complete unit and make available for review.
5. Present *How much is too much? How little is too little?* to industry experts for review	August 2012	Feedback for technical improvements.
6. Pilot *How much is too much? How little is too little?* four California classrooms	September – October 2012	Feedback for curriculum improvements.
7. Align *How much is too much? How little is too little?* to CA Content Standards for Public Schools	November 2012	Content standard matrix to be added to instructional unit.
8. Layout, design and proof *How much is too much? How little is too little?*	November – December 2012	Instructional unit ready for printing and various distribution methods.

Table 2. 2013 Work Plan

Project Task	Completion Date	Product, Results, Measurable Outcomes
1. Print *How much is too much? How little is too little?* sets	January 2013	Hard copies of instructional unit available in both paper and CD format for distribution at ag days, teacher trainings and conference exhibits.
2. Add *updated unit* to lesson plan section of www.LearnAboutAg.org Promote via social media & Cream of the Crop monthly e-newsletter	January 2013	Instructional unit accessible worldwide. California educators strengthen students STEM skills and appreciation for agriculture while teaching State Standards. Downloads are evaluated with Web counter.
3. Plan *Educator's Guide for "Fun w/ Team Plant Nutrients"* 1-day development meeting	February 2013	N/A
4. Facilitate *Educator's Guide for "Fun w/ Team Plant Nutrients"* 1-day development	February 2013	Rough draft of *guide*.

meeting		
5. Align *Educator's Guide for "Fun w/ Team Plant Nutrients"* to CA Content Standards for Public Schools	March 2013	Content standards aligned to activities and the student activity booklet.
6. Present *Educator's Guide for "Fun w/ Team Plant Nutrients"* to industry experts for review	March 2013	Feedback for technical improvements.
7. Layout and design *Educator's Guide for "Fun w/ Team Plant Nutrients"*	April – May 2013	Guide ready for various distribution methods.
8. Promote new/updated resources through social media	June 2013	Increased website downloads of instructional unit.
9. Promote new/updated resources through monthly *Cream of the Crop* e-newsletter	June 2013	13,000 people receive announcement of new resource. Increased website downloads of instructional unit.
10. Present new/updated resources at national educators conference (ex: National Agriculture in the Classroom Conference)	June 2013	100 teachers receive training to implement instructional unit in the classroom. Collect contact information to administer survey in January 2014.
11. Promote FREP materials through Postcard Promotional Mailing	August 2013	Increased website downloads of instructional units and requests of ordering materials
12. Present new/updated resources at state educators conference (ex: California Science Teachers Conference)	October 2013	100 teachers receive training to implement instructional unit in the classroom. Collect contact information to administer survey in January 2014.
13. Project evaluation	January 2014	Electronic survey administered to teachers. Compile teacher observations, assessments and specific student insights, recognitions, and understandings about agriculture after implementing the curriculum.
14. Compile the results of project for final report	March 2014	Project complete and final report submitted.
15. Project promotion and dissemination	Ongoing	N/A

2. Methods

The proposed project offers a comprehensive, two-pronged approach to increasing student understanding of the essential role of plant nutrients in agriculture production, enhancing student appreciation of the agriculture industry's efforts to improve environmental stewardship and encouraging students to pursue a career in plant sciences.

Part 1: Update and align *How much is too much? How little is too little?* unit

Production of educational resources is coordinated by California Foundation for Agriculture in the Classroom's curriculum coordinator. The curriculum coordinator reports to Judy Culbertson, executive director of the California Foundation for Agriculture in the Classroom. The curriculum coordinator invites selected educators from CFAITC's network of 13,000 contacts to serve on a writing committee for the updating and aligning unit, *How much is too much? How little is too little?* Industry or educational experts

from partnering organizations, such as the California Fertilizer Foundation and the California Department of Education, are invited to serve on the writing committee. The selected group reviews and discusses the topics to be addressed within the unit, investigates the facts, collaborates with other agriculture industry professionals, and develops a rough draft of lesson plans. Following the development meeting, the curriculum coordinator organizes and polishes the language of the instructional unit, adding an introduction, unit overview, acknowledgements, glossary, commonly asked questions, additional teacher resources and references, related websites, and related literature. The draft copy of the resource is then submitted to industry experts for technical review. Feedback for technical improvements is received and changes are implemented. Often, several rounds of reviews will occur to attain absolute accuracy. Pilot lessons will be executed in several California classrooms. The educators conducting the lessons will provide specific feedback for curricular improvements. Once again, teacher suggestions are considered and often implemented within the instructional unit. Following the review process, the curriculum coordinator aligns the lessons to the California State Board of Education's Content Standards. Once the copy has been finalized, the unit is formatted and illustrated to CFAITC formatting guidelines by a graphic designer.

Part 2: Develop an Educator's Guide for the Nutrients for Life Foundation's student activity book, "Fun with the Plant Nutrient Team."

CFAITC's curriculum coordinator will plan and facilitate a one-day curriculum workshop held at the CFAITC office in Sacramento to be attended by two educators. Participating educators will be selected based on their experience working with CFAITC and experience teaching life science. The goal of the update meeting is to align the resource to the California content standards, create additional hands-on activities, and extension ideas. Following the meeting, the curriculum coordinator will further develop the ideas and format the guide. Feedback will be assessed from industry reviews and proof editing. Changes will be made to create the most accurate, relevant and useable curriculum possible.

Project dissemination

Project dissemination plans to the academic community are clearly outlined in Table 1 and 2. Developed curriculum will be available to educators in three formats: hard copy (print), electronic copy (CD) and electronic (online). CFAITC will distribute hard copies and CDs of the instructional resource at the Farm Days, California and National AITC Conferences, student teacher presentations and teacher conferences. We will also ship the resource to California teachers by request. To disseminate the project to the broadest extent among the academic community, CFAITC is committed to promoting the new resource via social media, postcard promotional mailings, and our e-newsletter, *Cream of the Crop*. CFAITC has access to over 1,400 "fans" and "followers" via social media, who regularly receive updates from our organization. The California Foundation for Agriculture in the Classroom also communicates regularly with a growing number of key educators, whom we identify as our "Ambassadors." Our Ambassadors currently total 13,000 educators. Another 9,500 individuals are on CFAITC's mailing list as Friends of Agriculture. These Friends of Agriculture are non-teachers with an interest in agricultural education, perhaps serving as volunteers in their communities and promoting and using Agriculture in the Classroom resources through programs such as California Women for Agriculture (CWA), the Water Education Foundation, county Farm Bureau agriculture education programs, California Regional Environmental Education Community (CREEC), or school garden programs. *Cream of the Crop,* CFAITC's electronic newsletter sent to CFAITC Ambassadors and Friends of Agriculture will announce availability of this new resource and how to easily access it. Promotional mailings are sent to the 13,000 "Ambassadors", 9,500 Friends of Agriculture and 9,000 to each school principals from the California Department of Education list.

In addition, these resources will be listed in CFAITC's 2013-2014 Teacher Resource Guide (*www.LearnAboutAg.org/trg*) and be submitted for review and approval to be placed on the USDA-AITC National Resource Directory (*www.agclassroom.org/directory*). The project outcomes/impacts will be shared with other AITC contacts at regional and national meetings. Electronic communication will announce the resource's availability to the greater agriculture community.

3. Experimental site

This project will be pilot tested in four California classrooms, to be determined during the project period. Typically, CFAITC works with school district curriculum specialists to select the appropriate classrooms. In addition, this resource will reach thousands of classrooms and hundreds of school districts during the life of the project.

F. Project Management, Evaluation and Outreach

1. Management
Jenna Swenson, curriculum coordinator for California Foundation for Agriculture in the Classroom will develop, organize, and lead the daily actions of this project. Jenna joined CFAITC in October 2010. Jenna earned a Bachelor of Science degree in Agricultural Sciences and a Single-Subject and Specialist Teaching Credential in Agriculture from Cal Poly San Luis Obispo. Jenna is currently writing a thesis for a Master of Science degree in Agriculture from Cal Poly, San Luis Obispo. Jenna reports to Judy Culbertson, executive director, California Foundation for Agriculture in the Classroom. Judy is past president of the National Agriculture in the Classroom Consortium. Judy earned a Bachelor of Science degree in Agricultural Business Management from Cal Poly, San Luis Obispo. Judy will oversee this project and has overseen all projects of the California Foundation for Agriculture in the Classroom since 1997. Judy and Jenna will share the responsibilities for assessing project results and administering the project evaluation and reporting process. Renee Hyatt, website and social media coordinator for California Foundation for Agriculture in the Classroom, will provide technology support for this project. Renee holds a Bachelor of Arts degree in Art Studio and has completed the Webmaster Certificate Program from California State University, Sacramento. She has worked for CFAITC for 10 years. Technology support includes promoting through social media, maintaining the instructional unit on CFAITC's website, quantifying and providing reports for monthly curriculum downloads, and resource printing and duplication. Renee will also be responsible for graphic design oversight.

Project cooperator, Corrie Pelc (California Fertilizer Foundation) and Harriet Wegmeyer (Nutrients for Life Foundation) will serve as advisors to curriculum development. The California Fertilizer Foundation and Nutrients for Life Foundation have extensive backgrounds in education, science and the agriculture industry. See the attached letters of support for more details about project cooperation.

2. Evaluation
Several different methods will be used to accurately and completely evaluate the success of the proposed project. CFAITC will use both qualitative and quantitative methods to determine if project objectives were obtained.

The first approach will provide a means to improve the curriculum during the development process. The updated unit will be pilot tested in four secondary classrooms and teachers will be required to complete a standardized evaluation addressing both the content of the unit as well as the teaching methods suggested. These evaluations will be used directly for ongoing project improvement. Students participating in the pilot testing procedure will also complete an assessment. CFAITC will create a pre- and post-test to measure changes in student knowledge (specific content matter) and appreciation for agriculture (overarching message). Through this evaluation method, we will be able to quantify student learning and determine the effectiveness of this project.

The second approach is strictly quantitative. CFAITC will monitor the number of times *How much is too much? How little is too little?* and the *Educator's Guide* are downloaded from *www.LearnAboutAg.org*. Although this evaluation method does not directly reflect the number of teachers teaching the entire unit, it can provide insight to teacher interest in the subject and the quantity of teachers who extract information or specific lessons from the resource.

The third approach reaches CFAITC Ambassadors and Friends. Upon completion of the project, CFAITC will evaluate by means of an established annual survey. The survey is distributed online and will be used to measure the project's stated objectives to: 1) Increase student understanding of the essential role of plant nutrients in agriculture production; 2) Enhance student appreciation of the agriculture industry's efforts to improve environmental stewardship and 3) Encourage students to pursue a career in plant sciences. Educators will access the survey online and be asked to evaluate many of CFAITC's programs, including the fertilizer curriculum.

3. Outreach
In order to increase educator awareness of the project's completion and availability, CFAITC is requesting FREP funds to present the finished curriculum at a state and national teacher training. These trainings are significant, because attending educators will receive hands-on training to incorporate the resource into their classroom immediately. After experiencing the unit through a teacher training, educators will be motivated to promote the resource to their colleagues by word-of-mouth.

State educator conferences may include:

- California Agriculture in the Classroom Conference
- California Agriculture Teachers Association Conference
- California Science Teachers Association Conference

National educator conferences may include:

- ChemEd Teachers Conference
- Chemical Education Conference
- Metropolitan Association for Teachers of Science
- National Ag Science Center Workshops
- National Agriculture in the Classroom Conference
- National Science Teachers Conferences

The resources will also be presented at the annual California Agriculture Literacy Coalition meeting. The Agriculture Literacy Coalition is a cohesive group of individuals who represent more than 100 different agriculture literacy organizations and agriculture companies who share a similar mission of increasing the public agricultural knowledge and appreciation for the industry. This promotion is an essential component of this project because it alerts educators and friends of agriculture about the availability of this curriculum, which ought to increase the number of individuals accessing it online and requesting hard copies.