

4.5 PSP Cover Sheet (Attach to the front of each proposal)

Biological Agricultural Systems in Cotton - BASIC - Reducing
 Proposal Title: Synthetic Pesticides & Fertilizers in the Northern San Joaquin Valley
 Applicant Name: Sustainable Cotton Project (SCP)
 Mailing Address: 6176 Old Olive Highway, Oroville, CA 95966
 Telephone: 530-589-2686
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 Email: suscotton@sunset.net

Amount of funding requested: \$ 1,388,784 for 3 years

Indicate the Topic for which you are applying (check only one box).

- | | |
|---|---|
| <input type="checkbox"/> Fish Passage/Fish Screens | <input type="checkbox"/> Introduced Species |
| <input type="checkbox"/> Habitat Restoration | <input type="checkbox"/> Fish Management/Hatchery |
| <input checked="" type="checkbox"/> Local Watershed Stewardship | <input type="checkbox"/> Environmental Education |
| <input type="checkbox"/> Water Quality | |

Does the proposal address a specified Focused Action? yes no

What county or counties is the project located in? Merced, Madera, Fresno Counties

Indicate the geographic area of your proposal (check only one box):

- | | |
|--|---|
| <input type="checkbox"/> Sacramento River Mainstem | <input type="checkbox"/> East Side Trib: _____ |
| <input type="checkbox"/> Sacramento Trib: _____ | <input type="checkbox"/> Suisun Marsh and Bay |
| <input checked="" type="checkbox"/> San Joaquin River Mainstem | <input type="checkbox"/> North Bay/South Bay: _____ |
| <input type="checkbox"/> San Joaquin Trib: _____ | <input type="checkbox"/> Landscape (entire Bay-Delta watershed) |
| <input type="checkbox"/> Delta: _____ | <input type="checkbox"/> Other: _____ |

Indicate the primary species which the proposal addresses (check all that apply):

- | | |
|---|--|
| <input checked="" type="checkbox"/> San Joaquin and East-side Delta tributaries fall-run chinook salmon | <input type="checkbox"/> Spring-run chinook salmon |
| <input checked="" type="checkbox"/> Winter-run chinook salmon | <input type="checkbox"/> Fall-run chinook salmon |
| <input type="checkbox"/> Late-fall run chinook salmon | <input type="checkbox"/> Longfin smelt |
| <input type="checkbox"/> Delta smelt | <input type="checkbox"/> Steelhead trout |
| <input checked="" type="checkbox"/> Splittail | <input type="checkbox"/> Striped bass |
| <input type="checkbox"/> Green sturgeon | <input checked="" type="checkbox"/> All chinook species |
| <input checked="" type="checkbox"/> Migratory birds | <input checked="" type="checkbox"/> All anadromous salmonids |
| <input checked="" type="checkbox"/> Other: <u>Giant Garter Snake, V.P. Fairy Tadpole Shrimp,</u> | |

Specify the ERP strategic objective and target (s) that the project addresses. Include page numbers from January 1999 version of ERP Volume I and II:

Improve and maintain water and sediment quality to eliminate, to the extent possible, toxic impacts to organisms in the system, including humans (Volume I, p. 2).

Indicate the type of applicant (check only one box):

- | | |
|--|--|
| <input type="checkbox"/> State agency | <input type="checkbox"/> Federal agency |
| <input type="checkbox"/> Public/Non-profit joint venture | <input checked="" type="checkbox"/> Non-profit |
| <input type="checkbox"/> Local government/district | <input type="checkbox"/> Private party |
| <input type="checkbox"/> University | <input type="checkbox"/> Other: _____ |

Indicate the type of project (check only one box):

- | | |
|-------------------------------------|--|
| <input type="checkbox"/> Planning | <input checked="" type="checkbox"/> Implementation |
| <input type="checkbox"/> Monitoring | <input type="checkbox"/> Education |
| <input type="checkbox"/> Research | |

By signing below, the applicant declares the following:

- 1.) The truthfulness of all representations in their proposal;
- 2.) The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- 3.) The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

Will Allen, for the Sustainable Cotton Project
Printed name of applicant

Will Allen
Signature of applicant

Project Title: Biological Agricultural Systems in Cotton-BASIC-
Reducing Synthetic Pesticides and Fertilizers in the
Northern San Joaquin Valley

Proposal to the CALFED Bay-Delta Program
From the Sustainable Cotton Project
April 1999

Program Director: Will Allen
Managing Director: Kate Dusterberg

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General E-Mail: suscoton@sunset.net
Website: www.sustainablecotton.org

Type of organization: Non-profit, 501 (c)(3)

Tax Identification Number: 77-0402577

Technical Contact Person: Will Allen

Financial Contact Person: Kate Dusterberg

Participants/Collaborators in Implementation: Sustainable Cotton Project
University of California scientists
locally based mentor farmers

keywords: Community-based watershed protection,
pesticide and fertilizer reduction,
chlorpyrifos reduction,
San Joaquin River,
Merced River,
Splittail and "winter run"
Chinook Salmon habitat,
BIOS

I. Executive Summary

A. Project Description, Primary Biological/Ecological Objectives and Compatibility with CALFED Objectives. Cotton is one of the most widely planted and economically important crops in California's Central Valley. The average one million acres of cotton grown in the Valley produces over one billion dollars in farmgate revenue every year. Unfortunately, cotton production has profound impacts on the environment. In 1998, cotton was identified by the U.S. Environmental Protection Agency's (EPA's) Region IX office as one of the principle crops contributing to environmental and human health problems in the region. In terms of pesticides, cotton is California agriculture's third largest user of agricultural pesticides by weight, and the single largest user of EPA Category 1 and Category 2 pesticides.

Six pesticides that are widely used on cotton are documented as highly toxic to fish, and these pesticides are commonly applied in proximity to the habitats of each water, wetland and riparian-dependent, Bay-Delta Estuary species listed in the CALFED PSP. For example, two of cotton's most commonly applied and most toxic pesticides—chlorpyrifos and metam-sodium—are used in proximity to Splittail and "winter run" Chinook Salmon habitats. Other CALFED priority species that live in cotton proximate habitats include the Giant Garter Snake, the Vernal Pool Fairy Tadpole Shrimp, and the Aleutian Canada Goose.

CALFED itself cites cotton as one of the state's major users of chlorpyrifos, and CALFED has targeted this chemical for reductions through proven management practices (MPs). In fact, half-50 percent-of all the chlorpyrifos used in California agriculture is used on cotton.

The overarching objective of the Sustainable Cotton Project, a non-profit, farmer-based organization, is to reduce cotton farmers' use of agricultural pesticides and fertilizers that are harmful to people, wildlife, and the environment. Through its BASIC (Biological Agricultural Systems In Cotton) program, a program developed in partnership with University of California scientists and local farmers, SCP has enabled farmers to produce 1,000s of no or very low spray cotton in the Northern San Joaquin Valley.

In this proposal, SCP asks CALFED to fund a sustained and significant expansion of the BASIC program in the Northern San Joaquin Valley (Madera, Merced, and Fresno Counties). This area is located within the boundaries of two watersheds that were identified by the California Unified Watershed Assessment as Priority Category I watersheds. Over the next three years, BASIC's target is to convert 35,000 additional acres to BASIC MPs, which will reduce average annual insecticide use on these acres by 80 percent and synthetic fertilizer applications by 50 percent.

B. Approach, Tasks and Schedules. BASIC has many features in common with BIOS, a model in which CALFED has invested over half-a-million dollars to date. Like BIOS, BASIC field management practices favor biodiversity and soil building, and make use of intensive monitoring, thereby enabling cotton farmers to reduce their use of pesticides and fertilizers without increasing farming costs or decreasing quality or yields. Also like BIOS, BASIC is a voluntary, community-based program that uses a farmer to farmer information sharing model. During the three-year project period, SCP's target is to increase by 100 percent each year the number of acres under BASIC management in the Northern San Joaquin Valley (5,000 acres in 1999; 10,000 in 2000; 20,000 in 2001; and 40,000 in 2002), thus significantly decreasing the use of farm chemicals that are damaging to fish and wildlife. Additional targets include fertilizer use reductions and the testing of new, environmentally friendly growing techniques and technologies.

C. Justification for Project Funding by CALFED, Additional Benefits, and Third Party Impacts. In addition to the threatened species mentioned in "A" above, several rivers within the BASIC project area are on the clean Water Act Section 303(d) list and would likely benefit from an expansion of BASIC managed acreage. According to aquatic beneficial use designations, the San Joaquin and Merced Rivers are both impaired by diazinon and chlorpyrifos, and cotton is suspect as a large contributor to this impairment. Cotton uses more chlorpyrifos than any other crop, and agricultural runoff from both late winter storms and summer irrigation return flows has been identified as the principal contamination source of these rivers. Transport of these pesticides via the San Joaquin River contribute to "water column toxicity" in the San Francisco and San Pablo Bays, suggesting that a reduction of cotton pesticide and fertilizer use could have very broad aquatic benefits.

CALFED provides support for the implementation of MPs that offer cost-effective means of reducing off-site movement of pesticides and fertilizers. BASIC's MPs do just this; they are economically viable and have been proven to reduce both synthetic fertilizers and pesticides by an average of 63 percent and 83 percent respectively. BASIC's success on 40,000 acres of cotton will further establish the importance and adaptability of the "BIOS model." Such success will also set the stage for additional expansion of BASIC in other cotton growing regions and facilitate the continued mushrooming of BIOS-type collaborations between farmers, scientists, and PCAs.

D. Budget Costs. SCP is asking CALFED for approximately \$1,39 million over the next three years as follows: \$290,000 year one, \$478,000 year two, and \$621,000 year three. SCP will match 25 percent of all CALFED funding.

E. Applicant Qualifications. SCP has managed the BASIC project since its inception in 1995 and has received support from the U.S. EPA, Cal EPA, individual philanthropists, and leading environmental foundations. BASIC's mentor farmers all reside and farm in the Northern San Joaquin Valley and have substantial experience in successfully producing no or low spray cotton. The project's lead scientist is the director of the University of California's statewide Sustainable Agriculture Research and Education Program.

F. Monitoring and Data Evaluation. Data collection and evaluation is central to BASIC's success. To convince farmers to begin using BASIC MPs, they need to see proof that they can achieve adequate crop yields and quality levels while containing costs. SCP will continue to engage the University of California to monitor these factors. It will also measure all agrochemicals used at each farm to track pollution prevention and watershed protection. Monitoring protocols are all peer reviewed and conform to UC standards.

G. Local Support/Coordination with other Programs. Farmers relate to each other on the basis of long-term familial, regional and community connections. As a result, programs that succeed in these communities usually come from demands within the community. For farmers to change the way they use crop chemicals, they need to see their farm neighbors change their practices successfully. The BASIC program's success to date is largely attributable to its use of local farmers in management positions; BASIC has strategically recruited program participants who are well respected within their communities. In addition to its deep knowledge of farm community dynamics, the BASIC program also has excellent relationships with the Agriculture Commissioners' offices in the project counties, and with cotton scientists at both field stations in the area, University of California's Kerney and USDA's Shafter.

II. Project Description, Goals, and Scope of Work

The Sustainable Cotton Project's (SCP's) Biological Agricultural Systems In Cotton (BASIC) program is a BIOS-like program that teaches farmers how to minimize or eliminate their use of synthetic chemicals by instead using biological control systems, natural fertility management systems, and alternative methods of weed control and crop defoliation. BASIC enables farmers to dramatically reduce their use of pesticides and fertilizers that are damaging to wildlife habitats. Moreover, BASIC management practices (MPs) enable farmers to make these reductions without sacrificing economic or crop quality goals.¹

Data from BASIC fields show that growers can control insect and mite pests without or only rarely using pesticide sprays. Over the past three years, BASIC growers reduced their average insecticide use, including chlorpyrifos and five others that are toxic to fish, by 83 percent and their average synthetic fertilizer use by 63 percent. And they did so without lowering net profits. The biological controls recommended by BASIC cost only \$40 to \$80 per acre, whereas equivalent chemical controls costs between \$150 and \$180 per acre. In 1997, for example, BASIC growers saved an average of \$100 per acre yet maintained quality and yields that were statistically equivalent to conventionally managed control fields.² Table 1 summarizes the MPs advocated by the BASIC management team, and indicates where in the cropping cycle chemical reductions occur.

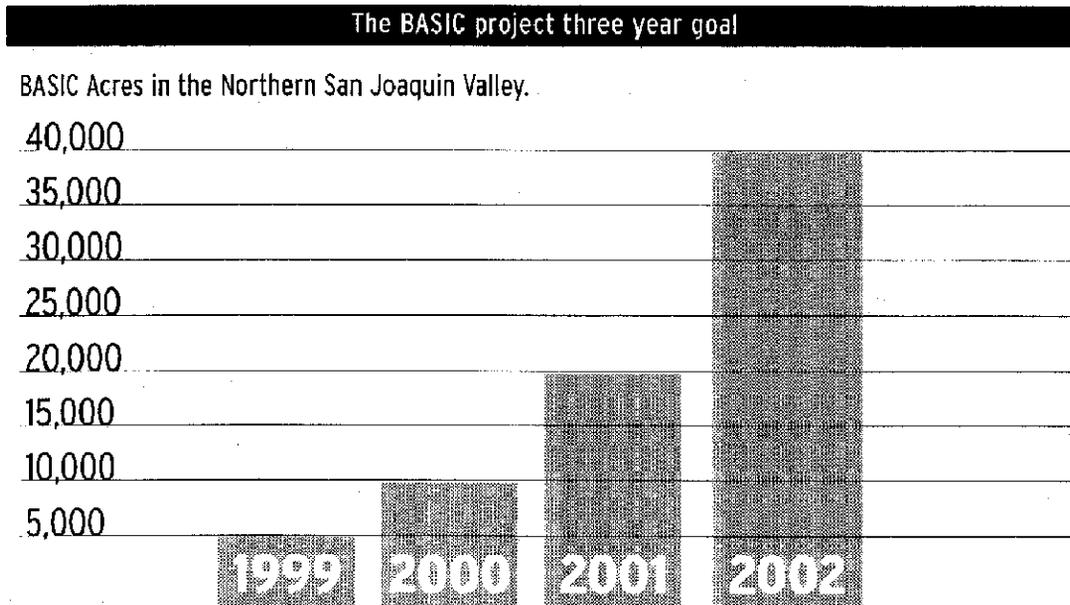


Table 1

The BASIC Production System	
Months	Goals
Nov.	Build soil fertility by planting a quick maturing winter cover crop. (Reduce chemical fertilizer inputs 20-50%)
Winter - Mar.	Build soil fertility by monitoring soil nutrients and applying compost as needed. (Reduce chemical fertilizer inputs 20-50%)
Winter - Apr.	Eliminate preplant herbicides such as <u>trifluralin</u> , <u>cyazazine</u> and <u>promethryn</u> . Instead, pre-irrigate and cultivate before planting and use the technique of <u>capping</u> before the seedling emerges.
Apr. - May	Eliminate <u>aldicarb</u> , <u>dicofol</u> , <u>proparqite</u> , <u>chlorpyrifos</u> and <u>prophenofos</u> applications used for early season lygus, thrip, mite, and aphid control (the most commonly used chemicals for these pests). Instead, protect naturally occurring beneficial insects and augment their populations by early releases of commercially raised beneficials.
Apr. - May	Reduce herbicide applications during and after planting by flame weeding, or using plant-based (non-synthetic) herbicides.
Apr. - Sept.	Avoid or reduce the use of miticide applications (<u>dicofol</u> and <u>proparqite</u>) throughout the season by scouting and continuing to release beneficial insects.
Jun. - Jul.	Avoid or reduce insecticide applications for lygus until cotton finishes squaring (forming flower heads).
Jun. - Aug.	Reduce growth regulators such as <u>mepiquat-chloride</u> by using a modified tobacco topper to slow upper growth of cotton.
Sept.	Reduce insecticides such as <u>chlorpyrifos</u> and <u>prophenofos</u> for late season aphid by scouting and continuing to release beneficial insects.
Sept. - Oct.	Reduce growth regulators (like <u>ethephon</u>) that ready the plant for defoliation by monitoring nutrient levels in petioles and timing irrigations.
Oct. - Nov.	Reduce or eliminate the defoliation chemicals tribufos and sodium chlorate by possibly using applications of mild vegetable fruit and humic acids.

A. Project Goals

Funding from CALFED over the next three years will support the following goals:

- ⊕ Conversion of 35,000 additional acres of cotton (for a total of 40,000) in the Northern San Joaquin Valley to BASIC MPs. This will require a doubling of BASIC acreage every year (5,000 acres in 1999; 10,000 in 2000; 20,000 in 2001; and 40,000 in 2002).
- ⊕ Reductions of insecticide and miticide use by at least 80 percent, including chlorpyrifos and all insecticides/miticides that are toxic to fish and wildlife; and reduction of synthetic fertilizer use by 50 percent.

B. Scope of Work

To achieve these goals, SCP has set forth four sets of tasks, each designed to compliment the other. These are to:

- ⊕ Continue coordinating the expanding BASIC program in the Northern San Joaquin Valley;
- ⊕ Increase acreage under BASIC management by 100 percent per year through 2002 in the Northern San Joaquin Valley;
- ⊕ Scientifically document changes in biodiversity, volumes of toxic chemical release, and economic performance as a result of BASIC MPs; and
- ⊕ Conduct on-farm tests of new methods designed to further reduce the use of toxic herbicides and synthetic fertilizers.

Task I: Continue coordinating the expanding BASIC program in the Northern San Joaquin Valley.

BASIC doesn't just tell farmers about its management program and then leave farmers to fend for themselves. Helping growers succeed in adapting their farms to BASIC management is a year-round activity. Each farmer that enrolls in BASIC is assigned to a mentor farmer who makes regular visits to these growers. Mentors are always on-call for decision-critical advice; they also call on other members of the management team as needed to solve in-season production problems. This approach of intensive handholding over several seasons has proven effective in helping farmers learn and stick with the BASIC program.

In addition to the three mentor farmers, BASIC's management team includes SCP's program director, a University of California extensionist, and a licensed independent pest control advisor. SCP coordinates the management team, which meets monthly to coordinate BASIC activities.

Task II: Increase acreage under BASIC management by 100 percent per year through 2002 in the Northern San Joaquin Valley.

Both grower experience and published, University of California data document the efficacy of BASIC MPs. BASIC saves farmers money by reducing their costs for pesticides and fertilizers without compromising crop quality or yields. Nonetheless, outreach to educate new farmers and other agricultural professionals about BASIC methods will be crucial to meeting the project's three-year, 40,000-acre target.

Using a coordinated set of outreach activities, SCP will promote the adoption of BASIC management practices to the approximately 1,200 cotton growers in Merced, Madera, and Fresno Counties. BASIC's promotional methods are patterned after the strategies used by farm chemical companies. These include visits by BASIC mentor farmers to neighboring farmers; and the production of promotional videos that are direct mailed to all cotton growers in the Northern San Joaquin Valley—a tactic used extensively by chemical companies to acquaint growers with new chemicals or tank mixes.

Additionally, BASIC will host three field days per year (open house style events for the entire community); BASIC management team members will speak and network at grower, commodity board, and ag extension cotton meetings; and SCP will work to attract the attention of the free media by pitching or placing articles on BASIC in both print and electronic farm press (see, for example, the attached February 1999, *California Farmer* article). Lastly, SCP will promote BASIC by buying space and time from the same farm media we are pitching for free press. While BASIC promotion will be an ongoing activity, the most intensive work will be done in the window between cotton crop harvest in November and planting in April.

Task III: Scientifically document changes in biodiversity, volumes of toxic chemical release, and economic performance as a result of BASIC MPs.

BASIC's monitoring protocols are designed to document the system's environmental, agronomic, and economic performance. Each BASIC field is statistically matched and compared to a nearby (but not adjacent) control field in which growers use conventional cotton growing practices. The BASIC monitoring protocol was developed and is carried out by a University of California scientific team led by Dr. Sean Swezey. For more details on BASIC's monitoring activities, please see Section V (Monitoring, Assessment, and Reporting).

Task IV: Conduct on-farm tests of methods that might further reduce the use of toxic herbicides and synthetic fertilizers.

BASIC is both a living laboratory and a huge classroom. Scientists from UC's Kerney and the USDA's Shafter Field Stations will help field test and evaluate new production methods that might further reduce herbicide and fertilizer use. During the cotton-growing season in each of the next three years, various MPs designed to reduce herbicide and synthetic fertilizer use will be tested on a field scale. For example, new, short season cover crops and compost mixes will be tested; various mechanical weed control strategies such as the Texas Rod Weeder and the Bezzerades Close Cultivator will be evaluated. Those found to be cost effective and most environmentally beneficial will be integrated into the BASIC program guidelines immediately, as well as included in the promotional activities described in Task II above.

Deliverables:

- ✦ Annual reports documenting the number of Northern San Joaquin Valley acres under BASIC management.
- ✦ Annual reports calculating reductions of agricultural chemicals by chemical, including both pesticides and fertilizers. These reports will quantify the amount by which BASIC methods reduce pesticide loads introduced into the environment.
- ✦ Annual reports comparing the cost effectiveness of the BASIC system of cotton production to conventional cotton production methods in the project area.
- ✦ Publication of annual results in a peer reviewed journal, which will serve to further scientific knowledge of and interest in community-based biologically intensive IPM approaches to farm chemical use reduction.

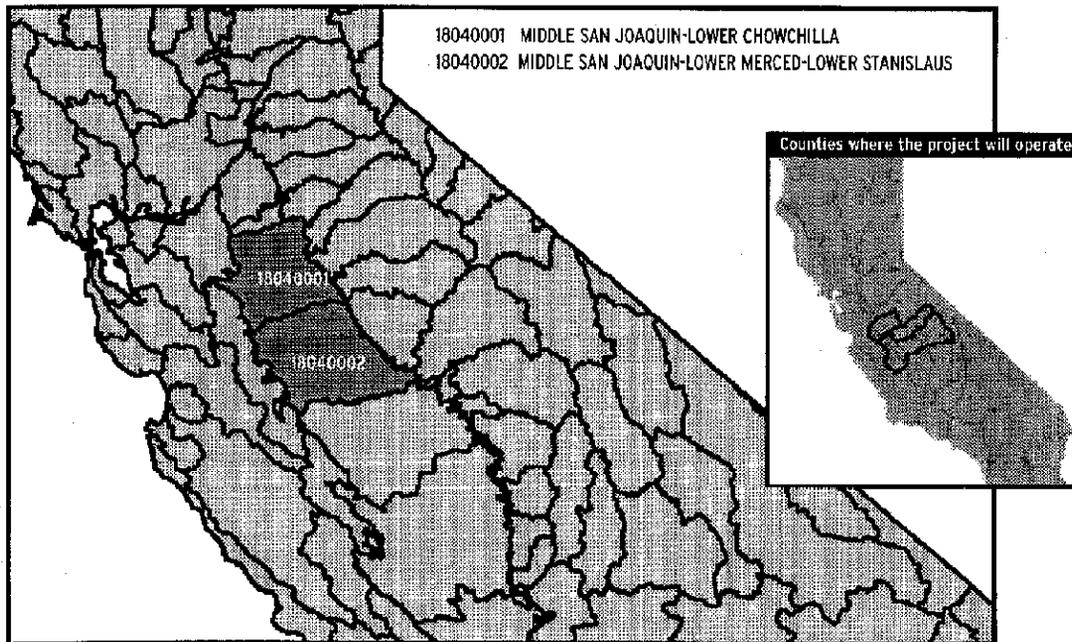
C. Geographic Boundaries of the Project

The project will operate in the Northern San Joaquin Valley counties of Madera, Merced, and Fresno, home to approximately 413,000 acres of cotton. Several rivers within this area are on the Clean Water Act Section 303(d) list, namely the San Joaquin and Merced Rivers. Other 303(d) water bodies within the area include Salt and Mud Slough and the Turlock Irrigation District Lateral #5.

Further, the BASIC project area traverses three Regional Water Quality Control Board designated watersheds, or hydrologic units (HUs): the Delta-Mendota Canal HU (541), which is located on the west side of the San Joaquin River and extends from Panoche Creek to the Stanislaus River; the San Joaquin Valley Floor HU (545), which is located to the east of the river and extends north from San Joaquin to the Chowchilla River; and the San Joaquin Valley HU (535), which also lies east of the river and extends north of the Chowchilla River to the Stanislaus River.

The California Unified Watershed Assessment (CUWA) identifies these three HUs as being within the boundaries of two Priority Category I watersheds: 18040001a (San Joaquin and Kings River Confluence to the Merced River) and 18040002a (Merced River and San Joaquin River Confluence to slightly north of the Stanislaus River) (see map).

The CUWA notes that these watersheds host some of the highest numbers of rare aquatic, riparian, and wetlands species in California. The relative ranking for 18040001a was 90-100 for such species (100 is the highest relative ranking); 18040002a received a relative ranking of 60-70. The CUWA further identifies these watersheds as having a high relative number (50 to 70) of threatened and endangered species and as hosting anadromous salmonids.



III. Ecological/Biological Benefits

A. The Need for this Project

There is strategic importance in funding the BASIC program; cotton is widely planted in the Central Valley, and it routinely relies on farming practices that have profound impacts on the environment.

As shown in Table 2 (page 12), at least six pesticides that are widely used on cotton have been documented to be moderately to highly toxic to fish; they are often highly toxic to invertebrate species and birds as well.³ These pesticides, Chlorpyrifos (Losrban), dicofol (Kelthane), naled (Dibrom), proparagite (Omite), metam-sodium (Vapam), and aldicarb (Temik), all are commonly applied in proximity to the habitats of each water, wetland, and riparian-dependent, Bay-Delta Estuary species listed in the CALFED PSP. For example, two of cotton's most commonly applied and most toxic pesticides—chlorpyrifos and aldicarb—are used in proximity to Splittail and "winter run" Chinook Salmon habitats, and aldicarb is twice as toxic to fish as the CALFED priority pesticide diazanon.⁴ Other CALFED priority species that live in cotton proximate habitats include the Giant Garter Snake, the Vernal Pool Fairy Tadpole Shrimp, and the Aleutian Canada Goose.⁵

Additionally, several rivers within the BASIC project area are on the Clean Water Act Section 303(d) list and would likely benefit from an expansion of BASIC managed acreage. According to aquatic beneficial use designations, the San Joaquin and Merced Rivers are both impaired by diazinon and chlorpyrifos, and cotton is suspect as a large contributor to this impairment. Cotton uses more chlorpyrifos than any other crop. CALFED has identified agricultural runoff from both winter storms and summer irrigation return flows as the principal contamination source of these rivers. Transport of these pesticides via the San Joaquin River contribute to "water column toxicity" in the San Francisco and San Pablo Bays, suggesting that a reduction of cotton pesticide use could have very broad aquatic benefits.

Conventionally grown cotton accounts for approximately 50 percent of California farms' use of all chlorpyrifos,⁶ a toxicant that CALFED has identified as particularly damaging to aquatic organisms. The cotton within the project area alone accounts for more than 10 percent of total California farm use of this chemical.⁷ However cotton also uses large amounts of the other toxic pesticides listed in Table 2. By volume, cotton within the project area uses 3.8 times more of these five chemicals than chlorpyrifos, and all of these chemicals are as toxic to fish as chlorpyrifos or more so. Table 2 also shows that the project area accounts for over half of the statewide cotton use of all six of these pesticides.

Conventionally grown cotton is also a large user of synthetic fertilizers. In the project area, cotton crops annually receive approximately 33 million pounds of water-soluble fertilizers,⁸ some of which runs off to the benefit of algae populations and the detriment of available in-stream oxygen. As a result of these problems, as well as public health concerns associated with cotton chemicals, the US EPA Region IX, recently identified cotton as one of three priority crops.⁹

B. Primary Benefits of the Project

BASIC MPs are designed to address and lessen the risks that cotton production poses to the environment and human health. By meeting its three-year, 40,000-acre goal, BASIC will positively impact 10 percent of the combined cotton

acreage in Madera, Merced, and Fresno counties. Reduction of watershed contaminants is especially important in the Northern San Joaquin Valley. All runoff in this area, be it rainfall or irrigation induced, makes its way to the San Joaquin River.

Specific primary benefits include:

- ⊕ Chlorpyrifos, a priority aquatic pollutant, will be reduced by 80 percent on up to 40,000 acres in the project area.
- ⊕ Five other cotton insecticides and miticides (dicofol [Kelthane], naled [Dibrom], proparagite [Omite], metam-sodium [Vapam], and aldicarb [Temik]), which are labeled as moderate or highly toxic to fish, will be reduced by 80 percent. To date, these pesticides and miticides have not been singled out for action by CALFED. However, because of their known toxicity to fish and other aquatic species, they likely contribute to the decline of in-stream habitat.
- ⊕ In-stream loading of nutrients will be reduced because, on average, BASIC growers reduce their use of synthetic fertilizers (nitrogen, phosphorus, and potassium) by at least 50 percent. By meeting the project's 40,000-acre target, annual fertilizer applications in the Northern San Joaquin Valley will drop by some 15 million pounds.
- ⊕ Birds will also be primary beneficiaries because many of the pesticides that will be reduced not only impact avian species' food sources, they are also directly toxic to these species.

C. Secondary and Third Party Benefits

Because BASIC uses BIOS-like management practices, it will help establish in scientific policymaker and grower communities that BIOS-like programs can be effective in reducing non-point source pollution from agriculture operations. In turn, this will lead to greater public and private support of such programs.

Using BASIC's MPs on 40,000 acres of cotton will also help set the stage for the adoption of these MPs throughout the cotton industry of the Northern San Joaquin Valley and in other cotton growing regions, and it will facilitate the continued mushrooming of BIOS-type collaborations between farmers, scientists, and PCAs for other crops. Californian's public health will also be affected positively. One California study ranked cotton third for reported human illness complaints associated with agrochemical applications.¹⁰ Five of the nine most heavily used cotton pesticides cause cancer.¹¹ And cotton pesticides have recently been identified as the largest agricultural contributor to VOC air pollution in the San Joaquin Valley.¹² VOCs cause ground level ozone and smog, and thereby negatively affect people with respiratory problems. Cotton pesticides also find their way into human food through cottonseed oil, which is used in snack foods, and through the widespread practice of feeding raw cottonseed to dairy and beef cows.¹³

Finally, riparian habitats near BASIC farms will benefit from this project. Because BASIC data show that these habitats offer some of the best refugia for beneficial insects, BASIC farmers have an interest in maintaining and restoring such habitats near their farms. In effect, this project creates an incentive for riparian restoration among private landholders, a core tenet of CALFED's overall approach.

D. Durability of Results/Self-Sustaining Nature of Project

Because BASIC practices save growers up to \$150 per acre with no decrease in crop quality or yield, once growers adopt BASIC practices, they are likely to continue using them.

Further, BASIC's monitoring systems help farmers understand pest predator dynamics and provide practical insight into natural cycles and processes. They learn that they can tolerate, without economic loss, much greater levels of pest pressure than they previously believed. This is durable knowledge that allows farmers to grasp basic ecosystem principles, which they can then apply to all their fields (an additional secondary benefit). After two to three seasons in the program, farmers have built relationships with independent pest control advisors and other BASIC farmers, and they have the knowledge and confidence they need to continue succeeding using biologically intensive IPM strategies.

Finally, SCP's BASIC program is actually helping build the human infrastructure necessary to promote reduced-chemical farming practices in the future. The vast majority of pest control advisors work on a commission basis for farm chemical dealerships. But SCP provides business to and helps expand the knowledge base of independent pest control advisors who do not have a vested interest in promoting chemical use.

E. Compatibility with CALFED's Goals and Linkages with Other Projects

As noted in CALFED's "Revised Draft Water Quality Program Plan" January 1999, Section 5.1, "Inability to prevent toxicity caused by pesticides could impair full restoration of the ecological integrity of Central Valley rivers and the estuary."

BASIC is the only project in California that is successfully reducing environmental toxicity loads caused by cotton crops. The importance of the BASIC program has been recognized by the US EPA, which to date has invested over \$225,000 in it; by DPR, which has funded BASIC monitoring activities since 1996; and by a variety of private foundations, including the Heller Foundation, the Goldman Environmental Fund, and the Wallace Genetic Foundation. As a community-based, voluntary pesticide-use-reduction program, BASIC is similar in spirit to a number of other projects CALFED and/or the State Water Resources Control Board (through 319 funds) support in the Central and Sacramento Valleys. These include Biologically Integrated Orchard Systems, Biologically Integrated Prune Systems, Biorational Cling Peach Orchard Systems, and the NRCS Stanislaus Orchard project. BASIC uses very similar methodologies. Like these other projects, BASIC is demonstrating that community-based programs can achieve significant environmental and water quality benefits through voluntary measures, thus avoiding mandatory restrictions on pesticide use.

This proposal is particularly complementary to the Merced BIOS project, since both of these projects are reducing pesticide and fertilizer contamination of Merced's watershed. The positive effect on this watershed is therefore additive.

¹ The fact that BASIC's biologically intensive IPM approach maintains quality and yields without costing the grower additional money is documented in three papers by the project's PI. The most recent of these papers is "Pest and Beneficial Arthropod Abundance in California Biointensive Cotton Fields: The "BASIC" Experience," Swezey and Goldman, Proceedings of the Belvidere Cotton Conference, Gaithersburg Maryland, January 1999.

² Ibid.

³ W.S. Pease et al., "Pesticide Use in California: Strategies for Reducing Environmental Health Impacts," School of Public Health, University of California, Berkeley, 1996, Table A1.

⁴ Ibid.

⁵ Marovich and Kishaba, "Pesticides by Species," DPR, August 5, 1997.

⁶ California Department of Pesticide Regulation, "Pesticide Use Report: Indexed by Commodity and by Chemical" (Sacramento: California Environmental Protection Agency, 1995).

⁷ Ibid.

⁸ National Agricultural Statistics Service, "Chemical Usage Field Crops Summary" (Washington, DC: USDA, 1996).

⁹ Hattan et al., "Environmental and Program Assessment for the Regional Agriculture Team," EPA Region IX, internal document, 1998.

¹⁰ W.S. Pease et al., "Preventing Pesticide-Related Illness in California Agriculture: Strategies and Priorities," California Policy Seminar, Berkeley, CA, 1993, p. 72.

¹¹ Office of Environmental Health Hazard Assessment, "Chemicals Known to the State to Cause Cancer or Reproductive Toxicity," California EPA, Sacramento, CA, 1996.

¹² California Department of Pesticide Regulation, "Notice of Public Workshops...Reducing Volatile Organic Compound Emissions from Agricultural Pesticides," Table 5, 1998.

Table 2**Toxicity Profile of Selected High Use Cotton Insecticides and Miticides***

Pesticide Name	Avian Acute mg/kg	Invertebrate LC 50 mg/l	Fish LC 50 mg/l	1995 Project Area Total Pounds Use on Cotton**
chlorpyrifos++	177	-	2.4	481,600
diazinon+	3.2	0.2	0.09	not used
aldicarb ++	1	0.41	0.05	103,000
dicofol++	265	0.44	0.11	251,600
metam-sodium++	500	-	0.08	944,400
naled++	36.9	0.01	0.09	342,800
propargite++	4640	0.09	0.12	204,000

+ Not used in cotton

++ The BASIC system reduces the use of these pesticides by an average of 83% compared to pre-BASIC levels of use.

**Source: *Pesticide Use in California: Strategies for Reducing Environmental Health Impacts*, Pease et al. Center for Occupational and Environmental Health, School of Public Health, University of California, Berkeley, 1995.

***Source: Pesticide Use Report Indexed by Commodity, State of California, Department of Pesticide Regulations, 1995.

Use of Cotton Insecticides and Miticides Listed as Moderately to Highly Toxic to Fish (1995)

Chemical	Project Area Use in Pounds*	California Use in Pounds**
aldicarb [Temik]	103,000	344,700
chlorpyrophos [Lorsban]	481,600	1,339,700
dicofol [Kelthane]	251,600	445,700
naled [Dibrom]	342,800	565,300
proparagite [Omite]	204,000	524,500
metam sodium [Vapam]	944,400	1,213,650
Total Use on Cotton in Project Area	2,327,400	Total Use on Cotton in CA 4,433,550

*Source: Pesticide Use Report Indexed by Commodity, Fresno, Madera, and Merced counties, 1995.

**Source: Pesticide Use Report Indexed by Commodity, State of California, Department of Pesticide Regulations, 1995.

The BASIC system reduces the use of these pesticides by an average of 83% compared to pre-BASIC levels of use.

IV. Technical Feasibility and Timing

BASIC data show that its MPs are technically feasible. Since the project's formal inception in 1996, the agronomic and economic performance of the BASIC system has been carefully tracked by a scientific team led by Dr. Sean Swezey. Based on this data, Dr. Swezey is confident in asserting that the Northern San Joaquin Valley is biologically ideal for growing low or no spray cotton, and that such cotton can be produced on a cost effective per acre basis.

Moreover, BASIC's mentor program works. This program, through which farmers receive training in BASIC MPs, has been operating in Merced and Madera counties since 1996. From 1996 through 1998, 18 different growers on over 5,000 acres field-tested BASIC methods.

Now SCP's target is to increase BASIC managed acreage from the 1999 level of 5,000 acres to 10,000 acres in 2000; 20,000 in 2001; and 40,000 by 2002. A number of factors convince SCP that the time is right to set such an ambitious target.

- ⊕ Cotton farmers have been increasing their use of pesticides in recent years without any increase in yields, and consequently, their profit margins are eroding. BASIC gives farmers the means to lower pest control costs without lowering quality or yields.
- ⊕ Increased regulatory pressure on cotton chemicals, including the Food Quality Protection Act and the potential imposition of TMDL's, is providing an incentive for farmers to look for alternatives to polluting pesticide controls.
- ⊕ Farmers personal health concerns about using chemicals linked to cancer and birth defects is motivating some to seek alternatives. The 15 chemicals most used on cotton are classified by the US EPA as either cancer causing, birth defect causing, or both.
- ⊕ BASIC's enrollment is already growing rapidly. Because of the factors listed above, as well as BASIC's published efficiency data and its solid reputation among local farmers, BASIC enrollment doubled from 10 growers in 1998 to 21 growers in 1999 in the Northern San Joaquin Valley.

Given our confidence in the agronomic and economic performance of the BASIC system, and the factors cited above, we believe that with adequate funding as proposed, SCP can succeed in doubling the number of acres under BASIC management year after year through the year 2002.

V. Monitoring, Assessment, and Reporting

In its "Revised Draft Water Quality Program Plan" January 1999, Section 5.8, CALFED notes that, at a minimum, programs implementing agricultural MPs should 1) quantify the amount of pesticide reduction achieved; and 2) determine the cost per acre to the farmer to implement the practice. BASIC's monitoring program does both.

At the end of each season, pesticide use on each field is determined from pesticide use reports that are filed with county agricultural commissioners. Pre-BASIC pesticide use reports serve as the baseline from which individual farm pesticide reductions are measured and compared to the project's overall 80 percent reduction goals for insecticides and miticides. Additionally, data from all grower participants is aggregated, so that a project-wide picture of progress is determined. Fertilizer use rates are determined from end of the season grower interviews. As with pesticides, pre-BASIC levels establish fertilizer baselines, and both individual grower data and aggregate project-wide data is recorded, evaluated, and reported.

Dr. Swezey's team calculates per acre costs of BASIC production methods, as well as crop quality and yields, using a variety of measures. Immediately prior to harvest, per acre cotton yields and quality for each field are estimated by hand harvesting four one-thousandth-acre pick plots per treatment replicate. Using appropriate conversion factors, equivalent machine-harvested and ginned cotton yields are determined. Pick plot estimates are verified by comparing these to individual field gin records. Total costs of production are assessed through a review of grower records and grower interviews.

Additionally, because BASIC relies on biological controls, its monitoring protocol includes collection of in-season field data. To monitor plant development, for example, scientists use the average of five plants from each of four field quadrants per treatment replicate to measure plant height, number of nodes, number of fruiting branches, first position retention on the bottom five and top five fruiting branches, and nodes above white flower (an indicator of the amount of time to cutout). The protocol also calls for tracking beneficial and pest arthropod populations, monitoring soil nutrient levels, and calculating on-farm water use. Arthropods are monitored through the season on a weekly basis using sweep net samples and leaf samples. Using these methods, farmers and researchers are able to keep track of all key pests (thrips, spider mites, aphids and lygus).

BASIC's monitoring protocol was developed and is carried out by a scientific team led by Dr. Sean Swezey. A key component of the protocol is that it calls for matching each BASIC field with a nearby (but not adjacent) control field, which allows monitors to compare crop quality and yields, as well as pesticide and fertilizer use, on BASIC and conventionally managed fields. The full protocol is described by Swezey and Goldman in their 1998 paper, "BASIC: A cotton pest management innovators group in the northern San Joaquin Valley" (Annual Proceedings of the Beltwide Cotton Conference, pp. 1119-1124).

In addition to being reported to CALFED, each year's field results, including agrochemical use reduction, crop quality, yields, and costs of production—all compared to conventional cotton control fields—will be published in a peer reviewed journal, as well as presented at the annual Beltwide Cotton Conference, and at BASIC field days.

Key Monitoring and Data Collection Information

Questions to be Evaluated	Data Collection Approach	Data Evaluation Approach	Comments
1. Number of acres under BASIC management	Annual survey of growers in the program	Reporting of aggregate acreage	Acreage will be compared to annual benchmarks
2. Annual insecticide and miticide reductions	Collect all pesticide use reports for each field in the program from each county agriculture commissioner office.	Tabulate annual use of all insecticides and miticides that are toxic to fish and aquatic life. Report these by grower and in the aggregate across total program.	Baseline use will be established by averaging the pre-BASIC use of tracked chemicals over the previous two seasons. The program's 80% reduction goals will be measured against this baseline.
3. Annual synthetic fertilizer reductions	Annual post season interviews with grower participants.	Interview includes review of invoice receipts for fertilizers.	Baseline will be established by averaging the pre-BASIC use of synthetic fertilizers over the previous two seasons. The program's 50% reduction goals will be measured against this baseline.
4. Economic performance comparison of BASIC methods with conventional methods.	Each BASIC field is matched with a nearby, but not adjacent, conventionally managed field. A number of factors, including crop quality, crop yield, and costs of production are tracked.	Pre-harvest pick plot data is gathered to determine quality and yields. Sample calculations are compared for accuracy with actual gin records for each field. Post season interviews are conducted to determine all the major costs of production. All data is aggregated and a final calculation is made determining the average cost of production per bale for BASIC vs. conventional cotton.	These annual comparisons are of great interest to farmers. One of the strengths of the program is its demonstration to farmers that they can significantly reduce agro-chemical use without reducing their net profits. This data is also used as part of an annually produced peer reviewed article.
5. Biodiversity of arthropods in BASIC vs. control fields. Plant growth and development.	Beginning in May of each year, both BASIC and control fields are monitored using peer reviewed protocols for pest and beneficial insect activity. Plant growth is likewise measured using the CAL-X model.	Data is plotted over the entire season. Every other month, this data is presented to BASIC growers in a newsletter. Post season, all data is plotted.	This data helps farmers understand the pest/predator dynamics at work in their fields. By comparing these population dynamics with plant growth and yield data, farmers learn that they can tolerate, without economic loss, much greater levels of pest pressure than they previously believed.

VI. Local Involvement

Farmers, rural residents and rural merchants conduct business on the basis of long-term familiarity; many religiously support local businesses although their prices may be higher than those of chain stores. Moreover, farmers and rural residents relate to each other on the basis of long-term familial, regional and community connections. Outsiders are generally suspect unless another "local" knows them intimately. As a result, programs that succeed in these communities usually come from demands within the community. For farmers to change the way they use crop chemicals, they need to see their farm neighbors change their practices successfully. They also need to be able to buy the alternative materials or strategies locally (again from a known dealer that another farmer recommends).

The BASIC program's success to date is largely attributable to its use of local farmers in management positions. The program uses a local team of mentor farmers, and its coordinators, field scouts and even the SCP director are all local farmers. And SCP will increase the size of its management staff over the three-year project time frame. By 2002, SCP plans to have hired six new mentor farmers (two new mentors each year), and to have hired an additional 10 field scouts (two in 2000, four in 2001, and four in 2002). In this way, SCP's BASIC program is actually helping build the human infrastructure necessary to promote reduced-chemical farming practices in the future.

In addition, the BASIC program has strategically recruited well respected members of the community, such as Ron Jones, who farms in partnership with his brother, California's Secretary of State Bill Jones, and Dave Stohl, who farms and is an independent Pest Control Advisor who gives professional advise to dozens of other area cotton farmers.

SCP also relies on excellent relationships with the Agriculture Commissioner's offices in the project counties, as well as with the two agricultural research stations based in this part of the Central Valley: the University of California's Kerney Station and the USDA's Shafter station. Scientists from both of these stations have and will continue to conduct piggy-back research in BASIC fields, evaluating alternative methods of weed control, soil fertility, and crop defoliation.

VII. Cost

The budget presented with this proposal represents SCP's experience in creating and administering the BASIC program for the past three years, as well as research on additional costs, such as purchasing advertising in local media.

The budget assumes:

- 1) Salary levels as presented represent current SCP staff levels.
- 2) An annual inflator of 3.5 percent has been applied to both personnel and program expenses, except in those areas where no inflation in costs over time is expected.
- 3) The whole project at full cost levels is presented in this budget. CALFED's, SCP's, and the University's portion (Task III only) of funding is indicated for each line item. If CALFED elects not to fund the project as presented, additional funding will be sought by SCP or the project will be reduced. SCP has multi-year commitments from private foundations for a substantial portion of the BASIC project through 2000, and it expects to match all the funding as indicated.
- 4) Task I spending levels assume that we are able to meet our goals of doubling the acreage under BASIC management year after year for the next three years, beginning in the 1999/2000 season. SCP accomplished this level of growth in the 1998/1999 season, and so this assumption seems achievable.
- 5) Task II advertising costs are relatively low because all of the BASIC project area is served by the greater Fresno media market. The county agriculture commissioners supply SCP with mailing labels for all cotton growers in their respective counties, so direct mail is an efficient means for reaching our target audience.
- 6) Task III is substantially paid for by the University of California through the first project year thanks to an EPA grant. Because monitoring, data analysis, and reporting of results are core project functions, and future EPA funding is not assured, we ask CALFED to pay these costs in project years two and three, with SCP paying 25 percent of these costs as indicated.
- 7) Task IV assumes that the weed scientist will be an employee of the University or USDA, and therefore no salary costs are included. The soil fertility expert however, Dr. Mark Buchanan, is not employed by the state or federal government, and will be working with the project as an independent consultant.
- 8) Task V reporting activities are based on an assessment of the cost to the organization of complying with governmental reporting rules, staffing of audits requested by CALFED, and general record keeping necessary to provide accurate results to grantors.
- 9) Overhead items include occupancy, general management oversight, and planning.

VIII. Cost-Sharing

For every three dollars that CALFED contributes to this project, SCP will contribute one dollar. The BASIC project has multiple year commitments from private foundations through the year 2000 from a number of private foundations, including the Jessie Smith Noyes Foundation, the Columbia Foundation, and the Richard and Rhoda Goldman Fund. We also receive annual contributions from Wallace Genetic Foundation, Rockefeller Financial Services, and Clarence Heller Foundation. Our funders have all assured us that if we meet project goals as described in this proposal, then they will continue funding the project throughout the project period.

Furthermore, Task III is being funded almost in its entirety during the first year by a US EPA grant to the University of California. This funding will end after the first project year; thereafter this Task is paid for by CALFED and SCP at the three to one ratio stated above.

IX. Applicant Qualifications

The Sustainable Cotton project's qualifications are unique. No other organization or individual has developed economically viable alternatives to conventional, environmentally polluting cotton-growing methods. SCP has not only developed these methods and backed them with science, it has already implemented a system for helping farmers convert to its BASIC MPs. Indeed, even bankers, who are particularly concerned with determining the efficacy pest control plans, have accepted BASIC's MPs. Another sign of the project's success is that the number of growers enrolled doubled from 1998 to 1999.

SCP is a 501(c)(3) non-profit. The majority of our board members are cotton farmers. SCP's mission calls for the organization to play a catalytic role in helping cotton farmers in California adopt management practices that are economical, yet no longer rely on chemicals that are toxic to humans, wildlife, or the environment. SCP has worked in the project area since 1991, and its BASIC program was formally established in 1996.

SCP is remarkably good at gaining free press coverage in major publications for our work. For example, the mid-February issue of *California Farmer*, the most widely circulated farm publication in California and Arizona, contained a feature article on the BASIC program (article attached). This ability to gain media coverage of BASIC will serve us well as we seek to recruit new growers into the program in coming years.

BASIC's success rests largely on the hard work of a focused team. Their specific qualifications are listed below.

SCP's Program Director, Dr. Will Allen, has farmed in the Northern San Joaquin Valley for 30 years, where he pioneered organic farming practices. Dr. Allen received a Ph.D. in Anthropology from the University of Illinois. His Ph.D. research investigated farming systems and land use practices of tropical forest cultures. In 1994, the Committee for Sustainable Agriculture awarded him the Steward of Sustainable Agriculture (Sustie Award) for a lifetime of helping fellow farmers learn strategies to reduce their reliance on farm chemicals.

SCP's Managing Director, Kate Dusterberg, has over a decade of experience managing nonprofits focused on agriculture issues. Before joining SCP this year, Ms. Dusterberg worked for the University of Vermont, coordinating an agricultural extension program designed to help dairy farmers reduce their use of farm chemicals. Prior to that, she worked for one of the Midwest's most successful sustainable agriculture groups, the Illinois Farm Stewardship Alliance.

SCP's Principal Scientific Investigator, Dr. Sean Swezey, is the Director of the University of California's Sustainable Agriculture Research and Education Program. He began working with SCP in 1992, and when the BASIC project was formalized in 1996, Dr. Swezey joined the management team. Dr. Swezey is considered one of the nation's leading experts on using biological control methods to replace insecticides and miticides to control arthropod cotton pests. The data set that Dr. Swezey has been building since 1996 on the BASIC program is the most complete set on the

agronomic, economic, and environmental changes experienced by farmers who convert from chemically intensive to a biologically based system of cotton production.

SCP's Farmer Outreach Coordinator, Lynda Sheppard, farms cotton on 800 acres with her husband Claude, who himself is a mentor farmer with the program. The Sheppard family has farmed in the Northern San Joaquin Valley for over 30 years. They began reducing their use of pesticides in 1991 and, in 1995, began producing organic cotton, which they sell to Levi Strauss.

Mentor farmer Pete Carneggi's family has been farming in the Northern San Joaquin Valley since 1912. Pete began farming on his own forty years ago. He is joined on the BASIC team by mentor farmer Shawn Moss who has farmed cotton for 16 years.

Independent Pest Control Advisor Ed Davis has been advising cotton growers for over 10 years. He has been an advocate of reducing pesticide use since at least 1993.

Attachments

- Project Budget
- Project Timeline & Milestones Table
- SCP/BASIC Organization Chart
- CALFED Required Contract Forms for Nonprofit Applicants
- Letters Notifying Local Government in Project Area
- Most recent press coverage of BASIC program (*California Farmer*, mid-February 1999)

**TOTAL SCP PROPOSED BUDGET
BY YEAR**

OCT 1999-SEP 2000

Task I	\$ 189,756	
Task II	\$ 62,906	
Task III	\$ 6,638	
Task IV	\$ 26,250	
Task V	\$ 4,551	
Total First Year		\$ 290,101

OCT 2000- SEP 2001

Task I	\$ 288,050	
Task II	\$ 68,989	
Task III	\$ 82,050	
Task IV	\$ 33,962	
Task V	\$ 4,710	
Total Second Year		\$ 477,762

OCT 2001-SEP 2002

Task I	\$ 409,807	
Task II	\$ 68,989	
Task III	\$ 94,797	
Task IV	\$ 42,452	
Task V	\$ 4,876	
Total Third Year		\$ 620,921

TOTAL CALFED PROPOSED BUDGET	\$ 1,388,784
TOTAL SUSTAINABLE COTTON PROJECT CONTRIBUTION	\$ 475,341
TOTAL IN-KIND CONTRIBUTION	\$ 121,641
PROJECT GRAND TOTAL	<u>\$ 1,985,765</u>

**CALFED Project
Quarterly Proposed Budget by Task**

FIRST YEAR	QUARTERLY BUDGET		QUARTERLY BUDGET		TOTAL
	OCT-DEC 1999		JAN-MAR 2000		
	APR-JUN 2000		JUL-SEP 2000		
<u>OCT 1999-SEP 2000</u>					
Task I	\$ 42,168	\$ 68,523	\$ 42,168	\$ 36,897	\$ 189,756
Task II	\$ 17,474	\$ 31,453	\$ 10,484	\$ 3,495	\$ 62,906
Task III	\$ 885	\$ 2,213	\$ 2,213	\$ 1,328	\$ 6,638
Task IV	\$ 7,292	\$ 7,292	\$ 5,833	\$ 5,833	\$ 26,250
Task V	\$ 1,011	\$ 1,011	\$ 1,011	\$ 1,517	\$ 4,551
Total First Year By Quarter	\$ 68,830	\$ 110,492	\$ 61,710	\$ 49,070	\$ 290,101

SECOND YEAR	QUARTERLY BUDGET		QUARTERLY BUDGET		TOTAL
	OCT-DEC 2000		JAN-MAR 2001		
	APR-JUN 2001		JUL-SEP 2001		
<u>OCT 2000-SEP 2001</u>					
Task I	\$ 64,011	\$ 104,018	\$ 64,011	\$ 56,010	\$ 288,050
Task II	\$ 17,247	\$ 37,944	\$ 10,348	\$ 3,449	\$ 68,989
Task III	\$ 19,306	\$ 24,132	\$ 24,132	\$ 14,479	\$ 82,050
Task IV	\$ 11,887	\$ 8,491	\$ 6,792	\$ 6,792	\$ 33,962
Task V	\$ 1,047	\$ 1,047	\$ 1,047	\$ 1,570	\$ 4,710
Total Second Year By Quarter	\$ 113,498	\$ 175,632	\$ 106,331	\$ 82,301	\$ 477,761

THIRD YEAR	QUARTERLY BUDGET		QUARTERLY BUDGET		TOTAL
	OCT-DEC 2001		JAN-MAR 2001		
	APR-JUN 2001		JUL-SEP 2001		
<u>OCT 2001-SEP 2002</u>					
Task I	\$ 91,068	\$ 147,986	\$ 91,068	\$ 79,685	\$ 409,807
Task II	\$ 17,247	\$ 37,944	\$ 10,348	\$ 3,449	\$ 68,989
Task III	\$ 22,305	\$ 27,881	\$ 27,881	\$ 16,729	\$ 94,797
Task IV	\$ 14,858	\$ 10,613	\$ 8,490	\$ 8,490	\$ 42,452
Task V	\$ 1,084	\$ 1,084	\$ 1,084	\$ 1,625	\$ 4,876
Total Third Year by Quarter	\$ 146,562	\$ 225,508	\$ 138,872	\$ 109,979	\$ 620,921

TOTAL CALFED PROPOSED BUDGET

\$1,388,783

**CALFED Proposed Three Year Project Budget
Task I**

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT SALARY & BENEFITS 25%	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC. AND OTHER DIRECT COSTS	INFLATION ALLOWANCE 3.50% (Yr 2 and 3)	SUSTAINABLE COTTON PROJ. SHARE OF COST 25%	IN-KIND CONTRIB.	PROPOSED CALFED BUDGET BY AREA
TASK I OCT 1999-SEP 2000									
Continue Coordinating and Expanding B.A.S.I.C. Program									
Personnel									
Managing Director									
Kate Duesterberg 50K FTE 50%	20 hrs/wk	\$ 31,250					\$ 7,813		\$ 23,438
Program Director									
Dr. William Allen 55K FTE 50%	20 hrs/wk	\$ 34,375					\$ 8,594		\$ 25,781
Program Coordinator									
Linda Sheppard 35K FTE 100%	40 hrs/wk	\$ 43,750					\$ 10,938		\$ 32,813
Program Coordinator Assistant									
To Be Selected 30K FTE 100%	40 hrs/wk	\$ 37,500							
Office/Financial Accts Manager									
Kelly Rounsaville 15/HR FTE 50%	20 hrs/wk	\$ 19,500					\$ 4,875		\$ 14,625
Total Personnel	100 hrs/wk	\$ 166,375					\$ 32,219		\$ 96,656
Program Expense									
Farmer Consultants									
5 Consultants, 3K/ea., Claude Sheppard, Shawn Moss, Pete Cornaggia, 2 to be selected, to conduct grower visits during growing/harvest season.									
			\$ 15,000				\$ 3,750		\$ 11,250
Pest Control Advisors									
1 Advisor, Ed Davis, to conduct grower visits during growing/harvest season.									
				\$ 3,780			\$ 945	\$ 5,000	\$ (2,165)
Insect Cost Shares									
21 new growers, 630/acre, \$30/acre									
			\$ 18,900				\$ 4,725		\$ 14,175
Field Scouts									
4 Scouts, Eddie DeAnda, Stephen Sheppard, 2 to be selected.									
			\$ 33,600				\$ 8,400	\$ 10,500	\$ 14,700
Program and Development Consultant - Beeline Associates									
			\$ 15,800				\$ 3,950		\$ 11,850
Rent									
\$500/mo, 12 mos									
					\$ 6,000		\$ 1,500		\$ 4,500
Utilities									
\$200/mo, 12 mos									
					\$ 2,400		\$ 600		\$ 1,800
Supplies									
\$250/mo, 12 mos									
					\$ 3,000		\$ 750		\$ 2,250
Travel									
\$3,000/mo									
					\$ 36,000		\$ 9,000		\$ 27,000
Telephone/Fax									
\$600/mo, 12 mos									
					\$ 7,200		\$ 1,800		\$ 5,400
Postage and Delivery									
\$260/mo, 12 mos									
					\$ 3,120		\$ 780		\$ 2,340
Total Program Expense			\$ 83,300	\$ 3,780	\$ 57,720	\$ -	\$ 36,200	\$ 15,500	\$ 93,100
Total Task I First Year		\$ 166,375	\$ 83,300	\$ 3,780	\$ 57,720	\$ -	\$ 68,419	\$ 15,500	\$ 189,756

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**CALFED Proposed Three Year Project Budget
Task I**

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT SALARY & BENEFITS 25%	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC. AND OTHER DIRECT COSTS	INFLATION ALLOWANCE 3.50% (Yr 2 and 3)	SUSTAINABLE COTTON PROJ. SHARE OF COST 25%	IN-KIND CONTRIB.	PROPOSED CALFED BUDGET BY AREA
TASK I OCT 2000-SEP 2001									
Continue Coordinating and Expanding B.A.S.I.C. Program									
Personnel									
Managing Director									
Kate Duesterberg 50K FTE 50%	20 hrs/wk	\$ 31,250				\$ 1,094	\$ 8,086		\$ 24,258
Program Director									
Dr. William Allen 55K FTE 50%	20 hrs/wk	\$ 34,375				\$ 1,203	\$ 8,895		\$ 26,684
Program Coordinator									
Linda Sheppard 35K FTE 100%	40 hrs/wk	\$ 43,750				\$ 1,531	\$ 11,320		\$ 33,961
Assistant Program Coordinator									
To Be Selected 30K FTE 100%	40 hrs/wk	\$ 37,500				\$ 1,313	\$ 9,703		\$ 29,109
Office/Financial Accts Manager									
Kelly Rounsaville 15/HR FTE 50%	20 hrs/wk	\$ 19,500				\$ 683	\$ 5,046		\$ 15,137
Total Personnel	140 hrs/wk	\$ 166,375				\$ 5,823	\$ 43,050		\$ 129,149
Program Expense									
Farmer Consultants									
7 Consultants, 3K/ea., Claude Sheppard, Shawn Moss, Pete Cornaggia, 4 to be selected, to conduct grower visits during growing/harvest season.			\$ 21,000			\$ 735	\$ 5,434		\$ 16,301
Pest Control Advisors									
2 Advisors, Ed Davis, 1 to be selected, to conduct grower visits during growing/harvest season.				\$ 7,560		\$ 265	\$ 1,956	\$ 5,000	\$ 868
Insect Cost Shares									
42 new growers, 1,260/acre, \$30/acre			\$ 37,800			\$ 1,323	\$ 9,781		\$ 29,342
Field Scouts									
8 Scouts, Eddie DeAnda, Stephen Sheppard, 2 to be selected.			\$ 67,200			\$ 2,352	\$ 17,388	\$ 10,500	\$ 41,664
Program and Development Consultant - Beeline Associates			\$ 15,800			\$ 553	\$ 4,088		\$ 12,265
Rent									
\$625/mo, 12 mos					\$ 7,500	\$ 263	\$ 1,941		\$ 5,822
Utilities									
\$250/mo, 12 mos					\$ 5,256	\$ 184	\$ 1,360		\$ 4,080
Supplies									
\$313/mo, 12 mos					\$ 3,756	\$ 131	\$ 972		\$ 2,916
Travel									
\$3,750/mo					\$ 45,000	\$ 1,575	\$ 11,644		\$ 34,931
Telephone/Fax									
\$750/mo, 12 mos					\$ 9,000	\$ 315	\$ 2,329		\$ 6,986
Postage and Delivery									
\$325/mo, 12 mos					\$ 4,800	\$ 168	\$ 1,242		\$ 3,726
Total Program Expense			\$ 141,800	\$ 7,560	\$ 75,312	\$ 7,864	\$ 58,134	\$ 15,500	\$ 158,902
Total Task I Second Year		\$ 166,375	\$ 141,800	\$ 7,560	\$ 75,312	\$ 13,687	\$ 101,183	\$ 15,500	\$ 288,050

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**CALFED Proposed Three Year Project Budget
Task I**

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT SALARY & BENEFITS 25%	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC. AND OTHER DIRECT COSTS	INFLATION ALLOWANCE 3.50% (Yr 2 and 3)	SUSTAINABLE COTTON PROJ. SHARE OF COST 25%	IN-KIND CONTRIB.	PROPOSED CALFED BUDGET BY AREA
TASK I OCT 2001-SEP 2002									
Continue Coordinating and Expanding B.A.S.I.C. Program									
Personnel									
Managing Director									
Kate Duesterberg 50K FTE 50%	20 hrs/wk	\$ 31,250				\$ 1,094	\$ 8,086		\$ 24,258
Program Director									
Dr. William Allen 55K FTE 50%	20 hrs/wk	\$ 34,375				\$ 1,203	\$ 8,895		\$ 26,684
Program Coordinator									
Linda Sheppard 35K FTE 100%	40 hrs/wk	\$ 43,750				\$ 1,531	\$ 11,320		\$ 33,961
Assistant Program Coordinator									
To Be Hired 30K FTE 100%	40 hrs/wk	\$ 37,500				\$ 1,313	\$ 9,703		\$ 29,109
Office/Financial Accts Manager									
Kelly Rounsaville 15/HR FTE 50%	20 hrs/wk	\$ 19,500				\$ 683	\$ 5,046		\$ 15,137
Total Personnel	140 hrs/wk	\$ 166,375				\$ 5,823	\$ 43,050		\$ 129,149
Program Expense									
Farmer Consultants									
9 Consultants, 3K/ea., Claude Sheppard, Shawn Moss, Pete Cornaggia, 6 to be selected, to conduct grower visits during growing/harvest season.			\$ 27,000			\$ 945	\$ 6,986		\$ 20,959
Pest Control Advisors									
3 Advisors, Ed Davis, 2 to be selected, to conduct grower visits during growing/harvest season.				\$ 15,120		\$ 529	\$ 3,912	\$ 5,000	\$ 6,737
Insect Cost Shares									
84 new growers, 5,040/acres, \$30/acre			\$ 113,400			\$ 3,969	\$ 29,342		\$ 88,027
Field Scouts									
12 Scouts, Eddie DeAnda, Stephen Sheppard, 2 to be selected.			\$ 120,000			\$ 4,200	\$ 31,050	\$ 10,500	\$ 82,650
Program and Development Consultant - Beeline Associates									
			\$ 15,800			\$ 553	\$ 4,088		\$ 12,265
Rent									
\$781/mo, 12 mos					\$ 9,372	\$ 328	\$ 2,425		\$ 7,275
Utilities									
\$313/mo, 12 mos					\$ 3,756	\$ 131	\$ 972		\$ 2,916
Supplies									
\$391/mo, 12 mos					\$ 4,692	\$ 164	\$ 1,214		\$ 3,642
Travel									
\$4,688/mo					\$ 56,256	\$ 1,969	\$ 14,556		\$ 43,669
Telephone/Fax									
\$938/mo, 12 mos					\$ 11,256	\$ 394	\$ 2,912		\$ 8,737
Postage and Delivery									
\$406/mo, 12 mos					\$ 4,872	\$ 171	\$ 1,261		\$ 3,782
Total Program Expense			\$ 276,200	\$ 15,120	\$ 90,204	\$ 13,353	\$ 98,719	\$ 15,500	\$ 280,658
Total Task I Third Year		\$ 166,375	\$ 276,200	\$ 15,120	\$ 90,204	\$ 19,176	\$ 141,769	\$ 15,500	\$ 409,807
Three Year Total Task I		\$ 499,125	\$ 501,300	\$ 26,460	\$ 223,236	\$ 32,863	\$ 311,371	\$ 46,500	\$ 887,613

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**CALFED Proposed Three Year Project Budget
Task II**

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT SALARY & BENEFITS	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC. AND OTHER DIRECT COSTS	INFLATION ALLOWANCE 3.50% (Yr 2 and 3)	SUSTAINABLE COTTON PROJ. SHARE OF COST 25%	PROPOSED CALFED BUDGET BY AREA
Implement Promotional Campaign								
Program & Development Consultant - Beeline Associates			\$ 15,800				\$ 3,950	\$ 11,850
Newsletter Writer/Editor								
Dan Arnold, monthly newsletter production & distribution, \$950/issue			\$ 9,600				\$ 2,400	\$ 7,200
Artist/Designer - SimpleLife Design								
Design print advertising, Web Site updates, pamphlets and brochures, produce radio advertising.			\$ 24,000				\$ 6,000	\$ 18,000
Media Purchase								
Print Advertising								
10 - 1/5 page ads, \$1250 per ad					\$ 12,500		\$ 3,125	\$ 9,375
Radio Time								
Sponsorships plus 30 second spots			\$ 7,775				\$ 1,944	\$ 5,831
Video - Kira Korser Videography								
Production								
Taping Interviews, dubbing & labeling			\$ 12,500				\$ 3,125	\$ 9,375
Distribution								
Direct mail to 800 growers					\$ 1,700		\$ 425	\$ 1,275
Total Task II First Year			\$ 69,675		\$ 14,200	\$ -	\$ 20,969	\$ 62,906

1-017495

1-017495

**CALFED Proposed Three Year Project Budget
Task II**

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT SALARY & BENEFITS	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC. AND OTHER DIRECT COSTS	INFLATION ALLOWANCE 3.50% (Yr 2 and 3)	SUSTAINABLE COTTON PROJ. SHARE OF COST 25%	PROPOSED CALFED BUDGET BY AREA
TASK II OCT 2000-SEP 2001								
Implement Promotional Campaign								
Program & Development Consultant - Beeline Associates			\$ 15,800			\$ 553	\$ 4,088	\$ 12,265
Newsletter Writer/Editor								
Dan Arnold, monthly newsletter production & distribution, \$950/issue			\$ 9,600			\$ 336	\$ 2,484	\$ 7,452
Artist/Designer - SimpleLife Design								
Design print advertising, Web Site updates, pamphlets and brochures, produce radio advertising.			\$ 24,000			\$ 840	\$ 6,210	\$ 18,630
Media Purchase								
Print Advertising								
10 - 1/5 page ads, \$1250 per ad					\$ 12,500	\$ 438	\$ 3,234	\$ 9,703
Radio Time								
Sponsorships plus 30 second spots			\$ 7,775			\$ 272	\$ 2,012	\$ 6,035
Video - Kira Korser Videography								
Production								
Taping Interviews, dubbing & labeling			\$ 17,500			\$ 613	\$ 4,528	\$ 13,584
Distribution								
Direct mail to 800 growers					\$ 1,700	\$ 60	\$ 440	\$ 1,320
Total Task II Second Year			\$ 74,675		\$ 14,200	\$ 3,111	\$ 22,996	\$ 68,989

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**CALFED Proposed Three Year Project Budget
Task II**

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT SALARY & BENEFITS	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC. AND OTHER DIRECT COSTS	INFLATION ALLOWANCE 3.50% (Yr 2 and 3)	SUSTAINABLE COTTON PROJ. SHARE OF COST 25%	PROPOSED CALFED BUDGET BY AREA
TASK II OCT 2001-SEP 2002								
Implement Promotional Campaign								
Program & Development Consultant - Beeline Associates			\$ 15,800			\$ 553	\$ 4,088	\$ 12,265
Newsletter Writer/Editor								
Dan Arnold, monthly newsletter production & distribution, \$960/issue			\$ 9,600			\$ 336	\$ 2,484	\$ 7,452
Artist/Designer - SimpleLife Design								
Design print advertising, Web Site updates, pamphlets and brochures, produce radio advertising.			\$ 24,000			\$ 840	\$ 6,210	\$ 18,630
Media Purchase								
Print Advertising								
10 - 1/5 page ads, \$1250 per ad					\$ 12,500	\$ 438	\$ 3,234	\$ 9,703
Radio Time								
Sponsorships plus 30 second spots			\$ 7,775			\$ 272	\$ 2,012	\$ 6,035
Video - Kira Korser Videography								
Production								
Taping Interviews, dubbing & labeling			\$ 17,500			\$ 613	\$ 4,528	\$ 13,584
Distribution								
Direct mail to 800 growers					\$ 1,700	\$ 60	\$ 440	\$ 1,320
Total Task II Third Year			\$ 74,675		\$ 14,200	\$ 3,111	\$ 22,996	\$ 68,989
Three Year Total Task II			\$ 219,025		\$ 42,600	\$ 6,221	\$ 66,962	\$ 200,885

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**CALFED Proposed Three Year Project Budget
Task III**

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT SALARY & BENEFITS 25%	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC. AND OTHER DIRECT COSTS	INFLATION ALLOWANCE 3.50% (Yr 2 and 3)	SUSTAINABLE COTTON PROJ. SHARE OF COST	IN-KIND CONTRIB.	PROPOSED CALFED BUDGET BY AREA
TASK III OCT 1999-SEP 2000									
Scientifically Document B.A.S.I.C. Program Success									
Personnel									
Agri Chemical Data Analyst									
Eric Sotelo, \$12/Hr, 3/4 Time, 3 mos	390 hrs	\$ 5,850					\$ 1,463		\$ 4,388
Specialist									
Dr. Sean Sweezey, 10% time, 9 mos	156 hrs		\$ 6,484					\$ 6,484	\$ -
Post Graduate Researcher									
Dr. Polly Goldman, 50% time, 12 mos	1040 hrs		\$ 20,250					\$ 20,250	\$ -
Field Assistant									
2 - To Be Selected, 50% time, 9 mos	1560 hrs		\$ 20,700					\$ 20,700	\$ -
Total Personnel	3146 hrs	\$ 5,850	\$ 47,434				\$ 1,463	\$ 47,434	\$ 4,388
Travel									
Domestic									
2 trips/wk 52 wks/yr (240 miles round trip @ \$.325)					\$ 8,112			\$ 8,112	\$ -
2 trips/mo 12 mo/yr (500 miles round trip @ \$.325)					\$ 3,900			\$ 3,900	\$ -
Total Travel								\$ 12,012	\$ -
Information Outreach									
Posters and other presentations					\$ 300			\$ 300	\$ -
Post-harvest grower interviews					\$ 1,300			\$ 1,300	\$ -
Total Information Outreach								\$ 1,600	\$ -
Other									
Local /lab phone					\$ 500			\$ 500	\$ -
Duplications					\$ 400			\$ 400	\$ -
Postage					\$ 6,870			\$ 6,870	\$ -
Computer Support					\$ 1,325			\$ 1,325	\$ -
Lab Analysis									
Samples from 42 fields, \$142.85/ea				\$ 6,000			\$ 750	\$ 3,000	\$ 2,250
Office Rent					\$ 2,000			\$ 2,000	\$ -
Total Other				\$ 6,000	\$ 11,095		\$ 750	\$ 14,095	\$ 2,250
Total Task III First Year		\$ 5,850	\$ 47,434	\$ 6,000	\$ 11,095		\$ 2,213	\$ 75,141	\$ 6,638

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**CALFED Proposed Three Year Project Budget
Task III**

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT SALARY & BENEFITS 25%	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC. AND OTHER DIRECT COSTS	INFLATION ALLOWANCE 3.50% (Yr 2 and 3)	SUSTAINABLE COTTON PROJ. SHARE OF COST	IN-KIND CONTRIB.	PROPOSED CALFED BUDGET BY AREA
TASK III OCT 2000-SEP 2001									
Scientifically Document B.A.S.I.C. Program Success									
Personnel									
Agri Chemical Data Analyst									
Enc Sotelo, \$12/Hr, 3/4 Time, 3 1/2 mos	455 hrs	\$ 6,825				\$ 239	\$ 1,766		\$ 5,298
Specialist									
Dr. Sean Sweezey, 12.5% time, 9 mos	195 hrs		\$ 6,613			\$ 231	\$ 1,711		\$ 5,133
Post Graduate Researcher									
Dr. Polly Goldman, 100% time, 12 mos	2080 hrs		\$ 20,655			\$ 723	\$ 5,344		\$ 16,033
Field Assistant									
2 - To Be Selected, 75% time, 9 mos	2340 hrs		\$ 31,052			\$ 1,087	\$ 8,035		\$ 24,104
Total Personnel	5070 hrs	\$ 6,825	\$ 58,320			\$ 2,280	\$ 16,856		\$ 50,569
Travel									
Domestic									
2 trips/wk 52 wks/yr (260 miles round trip @ \$.325)					\$ 8,788	\$ 308	\$ 2,274		\$ 6,822
2 trips/mo 12 mo/yr (500 miles round trip @ \$.325)					\$ 3,900	\$ 137	\$ 1,009		\$ 3,027
Total Travel					\$ 12,688	\$ 444	\$ 3,283		\$ 9,849
Information Outreach									
Posters and other presentations					\$ 375	\$ 13	\$ 97		\$ 291
Post-harvest grower interviews					\$ 1,625	\$ 57	\$ 420		\$ 1,261
Total Information Outreach					\$ 2,000	\$ 70	\$ 518		\$ 1,553
Other									
Local /lab phone					\$ 625	\$ 22	\$ 162		\$ 485
Duplications					\$ 500	\$ 18	\$ 129		\$ 388
Postage					\$ 8,588	\$ 301	\$ 2,222		\$ 6,666
Computer Support					\$ 1,656	\$ 58	\$ 428		\$ 1,285
Lab Analysis									
Samples from 84 fields, \$142.85/ea				\$ 11,999		\$ 420	\$ 3,105		\$ 9,315
Office Rent					\$ 2,500	\$ 88	\$ 647		\$ 1,941
Total Other				\$ 11,999	\$ 13,869	\$ 905	\$ 6,693		\$ 20,080
Total Task III Second Year		\$ 6,825	\$ 58,320	\$ 11,999	\$ 28,557	\$ 3,700	\$ 27,350		\$ 82,050

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**CALFED Proposed Three Year Project Budget
Task III**

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT SALARY & BENEFITS 25%	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC. AND OTHER DIRECT COSTS	INFLATION ALLOWANCE 3.50% (Yr 2 and 3)	SUSTAINABLE COTTON PROJ. SHARE OF COST	IN-KIND CONTRIB.	PROPOSED CALFED BUDGET BY AREA
TASK III OCT 2001-SEP 2002									
Scientifically Document B.A.S.I.C. Program Success									
Personnel									
Agri Chemical Data Analyst									
Eric Sotelo, \$12/Hr, 3/4 Time, 4 mos	520 hrs	\$ 7,800				\$ 273	\$ 2,018		\$ 6,055
Specialist									
Dr. Sean Swaezey, 15% time, 9 mos	312 hrs		\$ 8,266			\$ 289	\$ 2,139		\$ 6,416
Post Graduate Researcher									
Dr. Polly Goldman, 100% time, 12 mos	2080 hrs		\$ 25,819			\$ 904	\$ 6,681		\$ 20,042
Field Assistant									
2 - To Be Selected, 100% time, 9 mos	3120 hrs		\$ 41,402			\$ 1,449	\$ 10,713		\$ 32,138
Total Personnel	6032 hrs	\$ 7,800				\$ 2,915	\$ 21,551		\$ 64,652
Travel									
Domestic									
2 trips/wk 52 wks/yr (325 miles round trip @ \$.325)					\$ 10,985	\$ 384	\$ 2,842		\$ 8,527
2 trips/mo 12 mo/yr (500 miles round trip @ \$.325)					\$ 3,900	\$ 137	\$ 1,009		\$ 3,027
Total Travel								\$ -	\$ -
Information Outreach									
Posters and other presentations					\$ 469	\$ 16	\$ 121		\$ 364
Post-harvest grower interviews					\$ 2,031	\$ 71	\$ 526		\$ 1,577
Total Information Outreach									\$ -
Other									
Local /lab phone					\$ 781	\$ 27	\$ 202		\$ 606
Duplications					\$ 625	\$ 22	\$ 162		\$ 485
Postage					\$ 10,735	\$ 376	\$ 2,778		\$ 8,333
Computer Support					\$ 2,070	\$ 72	\$ 536		\$ 1,607
Lab Analysis									
Samples from 168 fields, \$142.85/ea				\$ 23,999		\$ 840	\$ 6,210		\$ 18,629
Office Rent					625	\$ 22	\$ 162		\$ 485
Total Other		\$ -	\$ -	\$ 23,999	\$ 14,836	\$ 1,359	\$ 10,049	\$ -	\$ 30,146
Total Task III Third Year		\$ 7,800	\$ -	\$ 23,999	\$ 14,836	\$ 4,274	\$ 31,599	\$ -	\$ 94,797
Three Year Total Task III	15912 hrs	\$ 20,475		\$ 41,998		\$ 7,974	\$ 61,162	\$ 75,141	\$ 183,485

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**CALFED Proposed Three Year Project Budget
Task IV**

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT SALARY & BENEFITS	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC. AND OTHER DIRECT COSTS	INFLATION ALLOWANCE 3.50% (Yr 2 and 3)	SUSTAINABLE COTTON PROJ. SHARE OF COST 25%	PROPOSED CALFED BUDGET BY AREA
TASK IV OCT 1999-SEP 2000								
Evaluation of Environmentally Preferred Farming Practices								
Weed Control Scientist								
(University Scientist to be recruited)					\$ 7,500		\$ 1,875	\$ 5,625
Supplies					\$ 2,500		\$ 625	\$ 1,875
Information Outreach					\$ 1,250		\$ 313	\$ 938
Soil and Fertility Expert								
Dr. Marc Buchanan			\$ 20,000				\$ 5,000	\$ 15,000
Supplies					\$ 2,500		\$ 625	\$ 1,875
Information Outreach					\$ 1,250		\$ 313	\$ 938
Total Task IV First Year			\$ 20,000		\$ 15,000		\$ 8,750	\$ 26,250
TASK IV OCT 2000-SEP 2001								
Evaluation of Environmentally Preferred Farming Practices								
Weed Control Scientist								
(University Scientist to be recruited)					\$ 9,375	\$ 328	\$ 2,426	\$ 7,277
Supplies					\$ 3,125	\$ 109	\$ 809	\$ 2,426
Information Outreach					\$ 1,563	\$ 55	\$ 404	\$ 1,213
Soil and Fertility Expert								
Dr. Marc Buchanan			\$ 25,000			\$ 875	\$ 6,469	\$ 19,406
Supplies					\$ 3,125	\$ 109	\$ 809	\$ 2,426
Information Outreach					\$ 1,563	\$ 55	\$ 404	\$ 1,213
Total Task IV Second Year			\$ 25,000		\$ 18,751	\$ 1,531	\$ 11,321	\$ 33,962
TASK IV OCT 2001-SEP 2002								
Evaluation of Environmentally Preferred Farming Practices								
Weed Control Scientist								
(University Scientist to be recruited)					\$ 11,719	\$ 410	\$ 3,032	\$ 9,097
Supplies					\$ 3,906	\$ 137	\$ 1,011	\$ 3,032
Information Outreach					\$ 1,954	\$ 68	\$ 506	\$ 1,517
Soil and Fertility Expert								
Dr. Marc Buchanan			\$ 31,250			\$ 1,094	\$ 8,086	\$ 24,258
Supplies					\$ 3,906	\$ 137	\$ 1,011	\$ 3,032
Information Outreach					\$ 1,954	\$ 68	\$ 506	\$ 1,517
Total Task IV Third Year			\$ 31,250		\$ 23,439	\$ 1,914	\$ 14,151	\$ 42,452
Three Year Total Task IV			\$ 76,250		\$ 57,190	\$ 3,445	\$ 34,221	\$ 102,664

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**CALFED Proposed Three Year Project Budget
Task V**

TASK DESCRIPTION	DIRECT LABOR HOURS	DIRECT SALARY & BENEFITS	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC. AND OTHER DIRECT COSTS	INFLATION ALLOWANCE 3.50%	SUSTAINABLE COTTON PROJ. SHARE OF COST 25%	PROPOSED CALFED BUDGET BY AREA
TASK V OCT 1999-SEP 2000								
Reporting to CALFED								
Quarterly Program Narrative and Financial Reports								
Managing Director	80 hrs	\$ 1,920					\$ 480	\$ 1,440
Program Coordinator	80 hrs	\$ 1,760					\$ 440	\$ 1,320
Office/Financial Accts Manager	40 hrs	\$ 600					\$ 150	\$ 450
Quarterly Request for Payment								
Managing Director	32 hrs	\$ 768					\$ 192	\$ 576
Office/Financial Accts Manager	32 hrs	\$ 480					\$ 120	\$ 360
Annual Report								
Managing Director	10 hrs	\$ 240					\$ 60	\$ 180
Program & Development Consultant	10 hrs	\$ 300					\$ 75	\$ 225
Total Task V First Year	52hrs	\$ 6,068						\$ 4,551
TASK V OCT 2000- SEP 2001								
Reporting to CALFED								
Quarterly Program Narrative and Financial Reports								
Managing Director	80 hrs	\$ 1,920				\$ 67	\$ 497	\$ 1,490
Program Coordinator	80 hrs	\$ 1,760				\$ 62	\$ 455	\$ 1,366
Office/Financial Accts Manager	40 hrs	\$ 600				\$ 21	\$ 155	\$ 466
Quarterly Request for Payment								
Managing Director	32 hrs	\$ 768				\$ 27	\$ 199	\$ 596
Office/Financial Accts Manager	32 hrs	\$ 480				\$ 17	\$ 124	\$ 373
Annual Report								
Managing Director	10 hrs	\$ 240				\$ 8	\$ 62	\$ 186
Program & Development Consultant	10 hrs	\$ 300				\$ 11	\$ 78	\$ 233
Total Task V Second Year	52 hrs	\$ 6,068						\$ 4,710
TASK V OCT 2001-SEP 2002								
Reporting to CALFED								
Quarterly Program Narrative and Financial Reports								
Managing Director	80 hrs	\$ 1,987				\$ 70	\$ 514	\$ 1,542
Program Coordinator	80 hrs	\$ 1,822				\$ 64	\$ 471	\$ 1,414
Office/Financial Accts Manager	40 hrs	\$ 621				\$ 22	\$ 161	\$ 482
Quarterly Request for Payment								
Managing Director	32 hrs	\$ 795				\$ 28	\$ 206	\$ 617
Office/Financial Accts Manager	32 hrs	\$ 497				\$ 17	\$ 129	\$ 386
Annual Report								
Managing Director	10 hrs	\$ 248				\$ 9	\$ 64	\$ 193
Program & Development Consultant	10 hrs	\$ 311				\$ 11	\$ 80	\$ 241
Total Task V Third Year	52 hrs	\$ 6,281				\$ 220	\$ 1,625	\$ 4,876
Three Year Total Task V	156 hrs	\$ 18,417				\$ 220	\$ 1,625	\$ 14,137

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I-017502

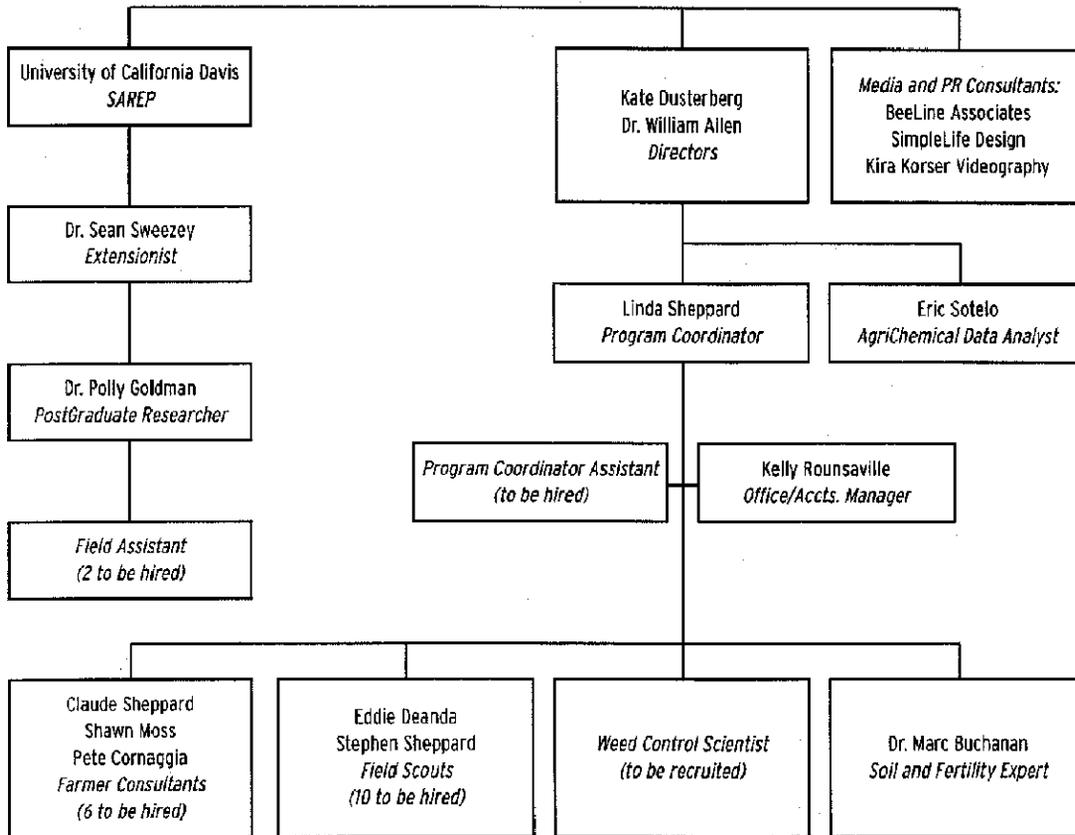
CALFED Timeline and Milestones 1999 - 2002

	YEAR ONE, 1999-00												YEAR TWO, 2000-01												YEAR THREE, 2001-02											
	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9
TASK I																																				
Continue Coordinating and Expanding B.A.S.T.C. Program																																				
Management Team Meetings																																				
Recruit new growers																																				
Hire new former mentors																																				
NEW GROWERS FINISH FIRST YEAR IN PROGRAM																																				
Hire new Field Scouts																																				
Field Days																																				
Recruitment meetings																																				
QUOTA OF NEW ACRES ENROLLED IN BASIC BY MARCH 30TH																																				
TASK II																																				
Implement Promotional Campaign																																				
Design and Produce new advertisements																																				
Place ads																																				
Free Press Outreach																																				
BASIC Newsletter																																				
Video Production																																				
Direct Mail Videos																																				
TASK III																																				
Scientifically Document B.A.S.T.C. Program Success																																				
Select Fields for Monitoring																																				
Begin Field Monitoring																																				
Conduct post harvest interviews																																				
Analyze pesticide use reports																																				
Produce annual reports																																				
YEAR'S RESULTS ANALYZED AND REPORTED																																				
TASK IV																																				
Demonstrate Improved Methods through Ecological Farming																																				
Fertility																																				
Select Fields																																				
Cover Crop evaluations																																				
Set up trials																																				
Disseminate results at June and November Field Days																																				
Weed Control																																				
Select Fields																																				
Evaluate Methods																																				
Set up trials																																				
Disseminate results at November and March Field Days																																				
NEW FERTILITY STRATEGIES IMPLEMENTED ACROSS THE PROGRAM																																				
NEW WEED CONTROL STRATEGIES IMPLEMENTED ACROSS THE PROGRAM																																				
TASK V																																				
Reporting to CALFED																																				
Program Narrative and Financial Reports																																				
Quarterly Request for Payment																																				
Annual Report																																				

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BASIC Project Organization Chart



NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95) FMC

COMPANY NAME

Sustainable Cotton Project

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

Will Allen

DATE EXECUTED

April 10, 1999

EXECUTED IN THE COUNTY OF

Butte

PROSPECTIVE CONTRACTOR'S SIGNATURE

Will Allen

PROSPECTIVE CONTRACTOR'S TITLE

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

**STANDARD CLAUSES --
SMALL BUSINESS PREFERENCE AND CONTRACTOR IDENTIFICATION NUMBER**

NOTICE TO ALL BIDDERS:

Section 14835, et. seq. of the California Government Code requires that a five percent preference be given to bidders who qualify as a small business. The rules and regulations of this law, including the definition of a small business for the delivery of service, are contained in Title 2, California Code of Regulations, Section 1896, et. seq. A copy of the regulations is available upon request. Questions regarding the preference approval process should be directed to the Office of Small and Minority Business at (916) 322-5060. To claim the small business preference, you must submit a copy of your certification approval letter with your bid.

Are you claiming preference as a small business?

_____ Yes*

~~_____~~ No

*Attach a copy of your certification approval letter.

SUSTAINABLE COTTON PROJECT

April 10, 1999

MADERA COUNTY PLANNING DEPARTMENT
135 WEST YOSEMITE AVENUE
MADERA, CA 93637

Dear Planning Director:

You have asked to be informed of proposed projects in your county which are being submitted for funding consideration to the CALFED-Bay Delta program.

The Sustainable Cotton Project (SCP) is submitting such a proposal. The purpose of this proposal is to expand, over a three year time, the number of acres of cotton grown using biologically intensive integrated pest management in a three county area—Madera, Merced, and Fresno. In 1999, SCP has approximately 5,000 acres enrolled in such a program. With CALFED's help, we will expand this to 40,000 acres—about 10% of the total cotton acreage within these counties, by 2002.

SCP is working closely with local farmers, pest control advisors, and UC extensionists on this project. Your county's agriculture commission office has been very helpful in working with us as well. Should you like further information about our project, or to discuss how your county may become more involved in helping your county's cotton growers increase their use of biologically intensive IPM practices, please feel free to contact our office.

Sincerely,



Will Allen
Program Director

6176 Old Olive Highway
Oroville, CA 95966
530-589-2686

SUSTAINABLE COTTON PROJECT

April 10, 1999

MADERA COUNTY BOARD OF SUPERVISORS
209 WEST YOSEMITE AVE.
MADERA, CA 93637

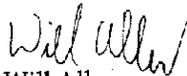
Dear Members of the Board of Supervisors:

You have asked to be informed of proposed projects in your county which are being submitted for funding consideration to the CALFED-Bay Delta program.

The Sustainable Cotton Project (SCP) is submitting such a proposal. The purpose of this proposal is to expand, over a three year time, the number of acres of cotton grown using biologically intensive integrated pest management in a three county area—Madera, Merced, and Fresno. In 1999, SCP has approximately 5,000 acres enrolled in such a program. With CALFED's help, we will expand this to 40,000 acres—about 10% of the total cotton acreage within these counties, by 2002.

SCP is working closely with local farmers, pest control advisors, and UC extensionists on this project. Your county's agriculture commission office has been very helpful in working with us as well. Should you like further information about our project, or to discuss how your county may become more involved in helping your county's cotton growers increase their use of biologically intensive IPM practices, please feel free to contact our office.

Sincerely,



Will Allen
Program Director

6176 Old Olive Highway
Oroville, CA 95966
530-589-2686

SUSTAINABLE COTTON PROJECT

April 10, 1999

MERCED COUNTY PLANNING DEPARTMENT
2222 M STREET
MERCED, CA 95340

Dear Planning Director:

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SUSTAINABLE COTTON PROJECT

April 10, 1999

MERCED COUNTY BOARD OF SUPERVISORS
2222 M STREET
MERCED, CA 95340

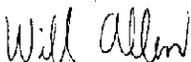
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SUSTAINABLE COTTON PROJECT

April 10, 1999

FRESNO COUNTY PLANNING DEPARTMENT
2220 TULARE STREET SUITE B
FRESNO, CA 93721

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Will Allen
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6176 Old Olive Highway
Oroville, CA 95966
530-589-2686

SUSTAINABLE COTTON PROJECT

April 10, 1999

FRESNO COUNTY BOARD OF SUPERVISORS
2281 TULARE STREET ROOM 301
FRESNO, CA 93721

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6176 Old Olive Highway
Oroville, CA 95966
530-589-2686

Cotton Producer

Basic approach

Cotton growers sign up for a program that looks at alternatives to chemical control for weeds and insect pests

BY DAN IMHOFF

After last year's disappointing harvest, cotton farmers still strategizing about this growing season might benefit from a three year-old program called Biological Agriculture Systems in Cotton (BASIC).

Funded by federal and state agricultural programs and private foundations, BASIC is a collaborative effort between California cotton growers, the



Sean Swezey scouts for insects in an organic cotton field as part of his work with the BASIC program.

Sustainable Cotton Project, agricultural consultants and the Center for Agroecology and Sustainable Food Systems at the University of California-Santa Cruz.

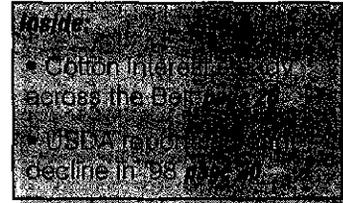
Shawn Moss, farms 100 acres of cotton and 400 acres of almonds in Madera County and is one of 10 growers who entered the BASIC program in 1996.

"I believe the BASIC approach can save farmers in this area a minimum of \$100 an acre," Moss says. "It seems like every spray we do is running about \$30 to \$35 an acre, with an average of three or four times per season, possibly more. Just by using BASIC's biological pest control program, you can save up to \$150 right off the get go. And it will work."

"The goal of BASIC is to develop a working knowledge of chemical reduction techniques that can be successfully and economically applied in California," says Will Allen, founder of the California-based Sustainable Cotton Project and a long-time farmer. "And the bottom line is that BASIC offers strategies designed to save the grower money by reducing the need for insecticides, miticides, chemical fertilizers and water."

Each season, BASIC hosts breakfast meetings, field days and other outreach events to educate growers about production methods. Growers who choose to enroll in the program do so before planting, and team up with other growers to field test the effectiveness of both proven and experimental methods of controlling weeds and pests.

The management team works with growers to create a plan that includes timely planting and refraining from insecticide use early in the cotton cycle.



BASIC growers implement biologically based pest management techniques, such as releasing beneficial insects and encouraging naturally occurring beneficial insects by planting fields near alfalfa or other select refuge crops. Intensive monitoring of the level of pests and beneficial insects in the field provides essential data growers need in the pest control decision-making process.

"You can eliminate a lot of pesticides by knowing what good bugs you have in the field," says Claude Sheppard, a certified organic grower in Madera County who has not used insecticides on his 800 acres of cotton for more than a decade. "If you have a balance of insects in the field, there's no reason to spray. That's the whole idea behind BASIC. You learn to get away from a lot of the pesticides that you have been using and still maintain the same yields that you have always had. In some instances, we have actually increased the yield, because we have found that the predators work a lot better."

Sean Swezey is a specialist at the Center for Agroecology and Sustainable Food Systems at UC-Santa Cruz. For six consecutive seasons Swezey has been monitoring conventional, organic and IPM cotton fields in California for a variety of criteria. After carefully selecting a group of growers who share similar farm practices and attributes, Swezey evaluates their performance throughout the growing season based on a number of factors — key arthropod populations, water-use, input energy equivalents, yields and quality.

"Nineteen ninety-eight was a low-yield year for cotton growers across the

continued on page 30

BASIC APPROACH
continued from page 24

board," Swezey says. "The data from 1996 shows that organic and conventional cotton fields in our BASIC sample had similar yields above two bales, while the BASIC-IPM yields were slightly lower. In 1997, however, BASIC-IPM and conventional growers achieved very comparable yields, at or above 2.5 bales, with organic yields lower. Organic cotton farming is riskier, and subject to more yield fluctuation. That is the principle reason why it commands a premium," he says.

In addition to customized farm plans and field monitoring, BASIC is also testing innovative strategies. These include in-row cultivators and flaming for weed control, organic acids as alternative defoliants, and fertility management. Throughout the season, BASIC growers receive a monthly newsletter and can call mentor farmers for assistance.

This year, BASIC is also extending southward with a pilot program in

Bakersfield targeted at specific challenges for cotton farmers in the southern San Joaquin Valley.

"Our co-director Joann Baumgartner has put together Bakersfield-area farmers, agriculture Extension, Rincon-Vitova and SAREP [Sustainable Agriculture Research and Education Program] personnel in an effort to create a locally tailored BASIC program," Allen says. Some of the participants include entomologists Everett and Jan Dietrich and Bob Bugg, and veteran cotton farmers Sandy and Roger Sanders.

BASIC is not without challenges. Key areas where the Sustainable Cotton Project hopes to focus significant research are in innovative weeding techniques, defoliation alternatives and fertility enhancement.

Linda Sheppard, who farms with her husband Claude and who guides growers through the program, casts its potential benefits in a very basic light. "Our house was actually built with money that we saved through these

techniques."

Interested growers have opportunities to learn more about the program during the winter off-season. The Sustainable Cotton Project has recently produced a video free of charge to growers. Call (209) 665-3925 to receive a copy.

Levi Strauss is hosting "From Field to Fashion: An Apparel and Textile Industry Forum on Environmental Issues in Cotton Agriculture, Feb. 24-26 to address a variety of matters of concern to cotton manufacturers and farmers. For more information about this event, call (303) 690-4245 or visit the Levi Strauss website at www.levistrauss.com/cotton.

Swezey will be delivering his most recent paper on BASIC 1997 results at the Levi Strauss conference. For information on BASIC in the Northern San Joaquin Valley, call (831) 471-9915; in the Southern San Joaquin Valley, call (805) 837-0181.

Dan Imhoff is a freelance writer from Philo who covers agricultural and environmental issues. ♦

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