Environmental Quality Incentives Program
Conservation Innovation Grants (b)
Agricultural Emissions Reductions
Guidelines, Policies, and Procedures
April 2009

The USDA Natural Resources Conservation Service (NRCS) is assisting agricultural producers with reducing ozone precursors [oxides of Nitrogen (NOx) and Volatile Organic Compounds (VOC)] and particulate matter [respirable (PM10) and fine (PM2.5)] emissions from agricultural sources through innovative air quality practices. The assistance offered through the NRCS encourages agricultural producers to use new and innovative agricultural emission reduction practices and technologies that provide significant environmental benefits to our natural resources. The primary goal is to achieve and maintain the National Ambient Air Quality Standards (NAAQS) in designated nonattainment areas in California.

Funding for this initiative is provided through the Environmental Quality Incentives Program (EQIP) Conservation Innovation Grants (b) [CIG (b)] portion of the 2008 USDA Farm Bill. The NRCS is providing payments for participants to implement conservation practices on their lands that benefit air quality. The priority is to improve existing, high polluting combustion systems and implement conservation practices that together result in reducing emissions.

Conservation practices that reduce ozone precursors and particulate matter include, but are not limited to:

- ✓ Chipping Annual Almond and Walnut Pruning, and Chipping Orchard and Vineyard Removals (Code 384)
- ✓ Combustion System Air Emissions Management (Code 723)
- ✓ Conservation Tillage Residue Management (Codes 329 & 345)
- ✓ Dust Control on Unpaved Farm Roads and Equipment Yards (Code 729)
- ✓ Pest Management (Code 595)
- ✓ Precision Pest Control Application (Code 718)
- ✓ Treated Wood Stake Disposal (Code 500)
- ✓ Waste Utilization – Manure Injection (Code 633)
- ✓ Windbreak/Shelterbelt Establishment at Confined Animal Facilities (Code 380)

This initiative provides payments associated with the expense of implementing new and innovative air quality technologies and practices. Payments are available for eligible practices that meet the specific program criteria. The applications that provide the greatest environmental benefit will be ranked highest in awarded funding through an evaluation process that is based on total emission reductions.

Participants must first obtain NRCS approval prior to the purchase and installation of any technology, system, or practice. Final approval is through a Form CCC-1202

Contract and Appendix, signed by the participant and NRCS approving official. Any system or practice purchased or installed prior to contract execution is not eligible.

A contract may encompass a single conservation practice or multiple practices and duration may range from a single year to multiple years. All payments are made after work is complete, project costs have been incurred and documented, and all required certifications are complete as required by the contract.

Eligible Counties

Listed are the eligible counties and corresponding NAAQS nonattainment pollutants. This list is intended to identify those counties eligible for CIG (b) funding only and is not intended to limit the implementation of any accepted air quality practice.

County	NAAQS Nonattainment Pollutant	County	NAAQS Nonattainment Pollutant
Alameda	8-Hr Ozone, PM-2.5	Nevada	8-Hr Ozone
Amador	8-Hr Ozone	Orange	8-Hr Ozone, PM-10, PM-2.5
Butte	8-Hr Ozone, PM-2.5	Placer	8-Hr Ozone, PM-2.5
Calaveras	8-Hr Ozone	Riverside	8-Hr Ozone, PM-10, PM-2.5
Contra Costa	8-Hr Ozone, PM-2.5	Sacramento	8-Hr Ozone, PM-10, PM-2.5
El Dorado	8-Hr Ozone	San Bernardino	8-Hr Ozone, PM-10, PM-2.5
Fresno	8-Hr Ozone, PM-2.5	San Diego	8-Hr Ozone
Imperial	8-Hr Ozone, PM-10, PM-2.5	San Joaquin	8-Hr Ozone, PM-2.5
Inyo	PM-10	San Mateo	8-Hr Ozone, PM-2.5
Kern	8-Hr Ozone, PM-10, PM-2.5	Santa Clara	8-Hr Ozone, PM-2.5
Kings	8-Hr Ozone, PM-2.5	Solano	8-Hr Ozone, PM-2.5
Los Angeles	8-Hr Ozone, PM-10, PM-2.5	Sonoma	8-Hr Ozone, PM-2.5
Madera	8-Hr Ozone, PM-2.5	Stanislaus	8-Hr Ozone, PM-2.5
Marin	8-Hr Ozone, PM-2.5	Sutter	8-Hr Ozone, PM-2.5
Mariposa	8-Hr Ozone	Tulare	8-Hr Ozone, PM-2.5
Merced	8-Hr Ozone, PM-2.5	Tuolumne	8-Hr Ozone
Mono	PM-10	Ventura	8-Hr Ozone
Napa	8-Hr Ozone, PM-2.5	Yolo	8-Hr Ozone, PM-2.5

Application Process

For application assistance, contact the NRCS Service Center in the county of the proposed project location. NRCS office locations are available at http://offices.usda.gov.

Applications forms may be downloaded at www.ca.nrcs.usda.gov/programs/eqip/ or obtained at any NRCS Service Center.

To be eligible for this initiative, a complete application must be submitted to a local NRCS office by close of business on Friday, June 26, 2009. Incomplete applications may be deferred to the next funding cycle. Deferred applications may be resubmitted when complete for the next fiscal year ranking cycle. EQIP applications are accepted on a continuous, year-round basis.

Complete Application Must Include:

- **Form NRCS-CPA-1200 Application:** Signed and dated by all program participants or authorized persons. Additional required documentation may include:
- **Form NRCS-CPA-1202:** Contract and Appendix, if program application is approved.
- **Form AD-1026:** Highly Erodible Land Conservation - Wetland Conservation Certification.
- **Form CCC-901A:** Entity Member Information, if applicable.
- **Form CCC-926:** Payment Eligibility Average Adjusted Gross Income (AGI) Certification.
- **Form SF-1199A:** Direct Deposit Sign-Up Form. All payments must be electronically deposited.
- **Form CA-LTP-5:** Producer Certification of Irrigation History, if applicable.
- **Land Ownership or Control:** The applicant may be required to provide evidence of control of land with ownership documents (deeds, etc) or lease information (rental agreements, permits, lease, etc) through the length of the contract.
- **Signature Authority:** If the applicant is an entity, documents such as articles of incorporation, charter, bylaws, partnership agreements, trust agreements, wills and similar legal evidence.
- **Form FSA-211 or NRCS-CPA-09:** Power of Attorney – if applicable (Entity applicants must submit this form).
- **Proof of Identity:** Authorized persons may be required to show valid state driver's license, passport or other personal identification as well as Social Security or EIN numbers, address and other information.

Note: **Confidential and Private Information**: Many of the program application forms or documentation requires the applicant to provide sensitive, contact, financial or other confidential information. Disclosure of this data is voluntary, but failure to provide the required information in a timely manner may result in the deferral of an application or denial of a benefit payment. By law and policy, confidential, private and sensitive information is protected by USDA and employees and agency partners are subject to penalty and disciplinary action for inappropriate or mismanagement of private data.

Screening and Ranking

A screening and ranking process will be used to identify those applications meeting high priority environmental objectives of the program and are likely to be funded. The criteria are described in this document.

Screening Criteria

The California Statewide Screening Criteria is established to assign a priority status category prior to ranking.

Proposed Project Eligibility:		Action
	Practice Ineligibility: The conservation practice(s) proposed for the EQIP application facilitates a change in scope or is solely production related per 515.81B or violate contract policy "Payments not Authorized", per 512.65. **Applicant History:** During the previous two EQIP program years (2007 and 2008), did the applicant have a USDA payment contract where: — The contract was modified to extend the planned practice installation and the practice has not been installed within the last year, or — The contract was cancelled without justification in the last two (2) program years or was terminated for any reason in the last three (3) program years.	**If "Yes", defer application and send letter citing reason for deferral.** **If "No", proceed to Screening Criteria evaluation**
A	**(1) Combustion System Air Emissions Management and Additional Air Quality Conservation Practices** [NOx & VOC (Ozone), PM10/PM2.5, VOC Initiatives]: Proposal to: (a) Repower, replace, or retrofit a high polluting, fully functional engine with a newer engine meeting the most current model year California emission standards or with electric; and, (b) Implement or are implementing one or more accepted air quality conservation practice; **or,** **(2) Combustion System Air Emissions Management** [NOx & VOC (Ozone), PM10/PM2.5]: Proposal to repower, replace, or retrofit a high polluting, fully functional engine with a newer engine meeting the most current model year California emission standards or with electric	**High Priority**
B	**Air Quality Conservation Practices** [PM10/PM2.5, VOC Initiatives]: Proposal to implement one or more air quality conservation practice other than Combustion System Air Emissions Management; **or,** **Compliance with Permit or Regulatory Actions:** Proposed EQIP plan or contract will assist with compliance of a rule requirement, permit condition or regulatory action.	**Medium Priority**

Ranking Criteria

Applications will be ranked using factors that address national and state conservation priorities for the identified air quality resource concerns. The applications that provide the greatest environmental benefit will receive the highest ranking and be awarded funding.

National Priorities

High: 70 – 51	Medium 50 – 21	Low: 20 – 0
The maximum total points that can be earned in this category is 70. Application categorized "High Priority" in the screening process will be ranked first and approved according to the final ranking score and available funding	The maximum total points that can be earned in this category is 50. Applications categorized "Medium Priority" in the screening process will be ranked after all "High Priority" applications are funded and if funds are available, will be approved according to the final ranking score.	The maximum total points that can be earned in this category is 20. Applications categorized "Low Priority" in the screening process will be ranked after all "High" and "Medium Priority" applications are funded and if funds are available, will be approved according to the final ranking score.

	Questions	Points
1	Will the treatment you intend to implement using EQIP result in a considerable reduction of non-point source pollution, such as nutrients, sediments, pesticides, excess salinity in impaired watersheds with total maximum daily loads (TMDL's) where available, groundwater contamination or point sources such as contamination from confined animal feeding operations?	10
2	Will the treatment you intend to implement for water conservation or irrigation efficiency using EQIP result in a considerable reduction in water use?	10
3	Will the treatment you intend to implement using EQIP result in a considerable reduction of emissions, such as particulate matter, oxides of Nitrogen (NOx), volatile organic compounds (VOC), and ozone precursors and depleters that contribute to air quality impairment violations of the National Ambient Air Quality Standards (NAAQS)?	10
4	Will the treatment you intend to implement using EQIP result in a considerable reduction in soil erosion and sedimentation from unacceptable levels on agricultural land?	10
5	Will the treatment you intend to implement using EQIP result in a considerable increase in the promotion of at-risk species habitat conservation?	10
6	Will the treatment that you intend to implement using EQIP result in considerable benefits to residue management, nutrient management, air quality management, invasive species management, pollinator habitat, and animal carcass management technology or pest management?	10
7	Will the treatment that you intend to implement using EQIP result in energy conservation benefits?	10

State Priorities

Each application will be ranked according to the listed ranking points. These points are determined by the cumulative environmental score obtained from the practice ranking criteria worksheets in Appendix A. Applications that receive the highest ranking points will determine the funding priorities.

Questions		Ranking Points
A1	For applications with a cumulative environmental score greater than 650, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	100
A2	For applications with a cumulative environmental score between 551 and 650, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	95
A3	For applications with a cumulative environmental score between 451 and 550, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	90
A4	For applications with a cumulative environmental score between 351 and 450, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	85
A5	For applications with a cumulative environmental score between 251 and 350, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	80
A6	For applications with a cumulative environmental score between 226 and 250, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	75
A7	For applications with a cumulative environmental score between 201 and 225, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	70
A8	For applications with a cumulative environmental score between 176 and 200, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	65
A9	For applications with a cumulative environmental score between 151 and 175, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	60
A10	For applications with a cumulative environmental score between 126 and 150, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	55
A11	For applications with a cumulative environmental score between 101 and 125, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	50
A12	For applications with a cumulative environmental score between 76 and 100, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	45
A13	For applications with a cumulative environmental score between 51 and 75, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	40
A14	For applications with a cumulative environmental score between 26 and 50, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	35
A15	For applications with a cumulative environmental score between 0 and 25, select this ranking score. (Use the applicable CA Local Ranking Criteria Worksheets to calculate the environmental score). Select only one A category.	30

Appendix A

Agricultural Emissions Reductions
CIG (b) Guidelines, Policies, and Procedures

Conservation Practices Ranking Worksheets

Ranking Criteria Worksheets are attached for these accepted air quality practices.

Practice Code	Ranking Criteria Worksheets
	EQIP CIG (b) Summary Worksheet
384	Chipping Almond and Walnut Pruning, and Chipping Orchard and Vineyard Removals
723	Combustion System Air Emissions Management Off-Road/Stationary Diesel Engine Replacement NOx Reduction Determination Heavy Duty Off-Road Engine NOx Reduction Determination Engine Retrofit Emissions Reduction Determination
345	Conservation Tillage Residue Management Conservation Tillage Worksheet
729	Dust Control on Unpaved Farm Roads and Equipment Yards
595	Integrated Pest Management
718	Precision Pest Management – Precision Spray Precision Pest Management – Sprinkler Treatments Following Soil Fumigation
500	Treated Wood Stake Disposal – Obstruction Removal
633	Waste Utilization – Liquid Manure Injection
380	Windbreak/Shelterbelt Establishment (at CAF's)

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality – EQIP CIG (b) Summary

Producer Name:	Application No:	Date:
CTU:	Other:	

Air Quality Practice	Total Environmental Score (from all applicable worksheet)
Chipping Almond & Walnut Pruning / Chipping Orchard & Vineyard Removals	
Combustion Systems Air Emissions Management	
Conservation Tillage Residue Management	
Dust Control on Unpaved Farm Roads and Equipment Yards	
Integrated Pest Management	
Precision Pest Management – Precision Spray	
Precision Pest Management – Sprinkler Treatments Following Soil Fumigation	
Treated Wood Stake Disposal – Obstruction Removal	
Waste Utilization – Liquid Manure Injection	
Windbreak/Shelterbelt Establishment (at CAF's)	
***Cumulative Environmental Score**:*	

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2009

Air Quality – Chipping Almond & Walnut Pruning / Chipping Orchard & Vineyard Removals

Producer Name:		Application No:	Date:
CTU:	Field No:	Crop:	Environmental Points
Technician:			Planned / Benchmark / Difference

	Air Quality Resource						Planned	Benchmark	Difference
		10 Points	**6 Points**						
1	*Annual smoke reduction commitments (NOx, VOC, PM10, PM2.5)*	*Conservation plan will eliminate all open burning for a cumulative four year period or longer*	*Conservation plan will eliminate the open burning of pruning for a cumulative four year period on entire CTU*	*Eliminate all open burning" includes: paper raisin trays, tumbleweeds, non-crop trees, fertilizer & pesticide sacks, etc.*					
		20 Points	**15 Points**	**10 Points**	**7 Points**	**5 points**			
2	*Impacts to public health and safety due to proximity of burning activities on CTU to public activities*	*Planned project is located within ¼ mile of a public use area**	*Planned project is located within ¼ to ½ mile of a public use area**	*Planned project is located within ½ to one mile of a public use area**	*Planned project is located within one to three miles of a public use area**	*Planned project is located over three miles of a public use area**		0	
		15 Points	**12 Points**	**8 Points**	**6 Points**	**0 Points**			
3	*Planned utilization of orchard and vineyard chips*	*Chipped materials remain on or are incorporated into the orchard or vineyard floor*	*Chipped materials are composted and utilized on the farm*	*Chipped materials are utilized for other Air Quality benefits (animal bedding, spread on unpaved roads)*	*Chipped materials will be used as biomass fuel for electric generation*	*Pruning or orchard / vineyard debris will be burned*			
		45 Points	**40 Points**	**35 Points**					
4	*One-time emission reduction effort/project (NOx, VOC, PM10, PM2.5)*	*Planned practice will chip debris from walnut, almond, or pecan orchard removals*	*Planned practice will have orchard removal debris chipped from other crops other than almond, walnut and pecan*	*Planned practice will have vineyard removal debris chipped*				0	
						Total Points:			
						Total Environmental Score (Planned – Benchmark):			

**Public use area: Include, but not limited to: homes, urban areas, sub-divisions, schools, parks, and federal and state highways.*

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality – Combustion Systems Air Emissions Management

Producer Name:	Application No:	Date:
CTU:	Other:	Environmental Points
Technician:		Planned / Benchmark / Difference

	Air Quality Resource						Planned	Benchmark	Difference
		20 Points	**18 Points**	**15 Points**	**10 Points**	**5 Points**			
1	*Existing Engine Size* *(maximum brake horsepower rating)*	*401+ hp*	*400 - 301 hp*	*300 - 176 hp*	*175 – 121 hp*	*120 – 50 hp*		0	
		20 Points	**18 Points**	**15 Points**	**10 Points**	**5 Points**			
2	*Existing Engine Annual Hours of Operation*	*Greater than 2,000 hours*	*2000 to 1,001 hours*	*1,000 to 501 hours*	*500 to 201 hours*	*200 hrs or less*		0	
		20 Points	**18 Points**	**15 Points**	**10 Points**	**5 Points**			
3	*Existing Engine Model Year*	*1979 or older*	*1980 – 1987*	*1988 – 1995*	*1996 - 2001*	*2002 - Present*		0	
		20 Points	**18 Points**	**15 Points**	**10 Points**	**5 Points**			
4	*NOx Emission Reductions* *(From worksheet)*	*Greater than 4 tons/year*	*4.0 to 2.1 tons/year*	*2.0 to 1.1 tons/year*	*1.0 ton - ¼ ton/year*	*Less than ¼ ton/year*		0	
		20 Points	**18 Points**	**15 Points**	**10 Points**	**0 Points**			
5	*NAAQS Nonattainment Designation* *(Select One)*	*Extreme or Severe, Designation*	*Serious Designation*	*Marginal or Moderate Designation*	*Subpart 1 Designation*	*In Attainment*		0	
**CMP = Conservation Management Plan*						*Total Points:*		0	
						Total Environmental Score (Planned – Benchmark):			

*NAAQS Nonattainment Designation**

Extreme:	*Fresno, Kern, Kings, Los Angeles, Madera, Merced, Orange, Riverside, San Bernardino, San Joaquin, Stanislaus, Tulare*
Severe:	*Placer, Sacramento, Solano, Yolo*
Serious:	*El Dorado, Inyo, Ventura*
Marginal:	*Alameda, Contra Costa, Marin, Napa, San Mateo, Santa Clara, Sonoma*
Moderate:	*Imperial, Mono*
Subpart 1:	*Amador, Butte, Calaveras, Mariposa, Nevada, San Diego, Sutter, Tuolumne*

** Some areas reflect ARB's reclassification requests to EPA.*

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality - Combustion System Air Emissions Management
Off-Road/Stationary Diesel Engine Replacement NOx Reduction Determination

Agricultural Producer: Date:

Existing Diesel Engine NOx Emissions Calculations

Existing Engine: Manufacturer: _____
Model Year Engine: _____
Equipment Type: _____
Serial Number: _____

Maximum Rated Brake Horsepower:		_____	$bhp_{maximum}$
Annual Hours of Operation:	x	_____	Hours/Year
NOx Emission Factor (Table 1 or Table 2):	x	_____	g/bhp-hour
Load Factor (Table 3):	x	_____	
Conversion to Tons:	x	1 / 907,200	Ton/grams
Engine #1 Annual NOx Emissions (EE) =		_____	Tons/Year

New Engine NOx Emissions Calculations (Report as zero emissions if electric)

New Engine: Manufacturer: _____
Model Year Engine: _____
Equipment Type: _____
Serial Number (if available): _____

Maximum Rated Brake Horsepower:		_____	$bhp_{maximum}$
Expected Annual Hours of Operation:	x	_____	Hours/Year
NOx Emission Factor (Table 2):	x	_____	g/bhp-hour
Load Factor (Table 3):	x	_____	
Conversion to Tons:	x	1 / 907,200	Ton/grams
New Equipment Annual NOx Emissions (NE) =		_____	Tons/Year

Calculation Results

Total Annual NOx Emission Reductions = (EE) – (NE) = _____ Tons/Year

Percent NOx Emission Reduction = (EE – NE) / (EE) x 100 = _____ %

Eligible for EQIP funding if NOx reductions are at least 15%

NOx Emission Factors (g/bhp-hour)

Table 1: Uncontrolled Diesel Engines (Non-Tier)

Horsepower	Model Year	NOx
50 – 119	Pre 1988	12.09
	1988 – 1995	8.14
120+	Pre 1970	13.02
	1970 – 1979	11.19
	1980 – 1987	10.23
	1988 – 1995	7.60

Table 2: Controlled Diesel Engines

Tier	Horsepower	NOx
1	50 – 174	6.54
	175+	5.93
2	50 – 119	4.75
	120 – 174	4.17
	175 – 250	4.15
	251+	3.79
3	50 – 120	2.74
	121 – 750	2.32
4 Interim	50 – 120	2.40
	121 – 174	2.15
	175 – 750	1.29
	>750	2.24
4 Final	50 – 120	1.33
	121 – 750	0.26
	>750	2.24

Table 3: Ag Equipment Default Load Factors

Tillers	0.78	Balers	0.53
Combines	0.70	Sprayers	0.50
Tractors	0.70	Hydro	0.48
Pumps	0.65	Mowers	0.43
Loaders	0.55	Forklifts	0.30
Swathers	0.55	Other	0.51

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality - Combustion System Air Emissions Management
Heavy Duty Off-Road Engine NOx Reduction Determination

Agricultural Producer: Date:

Existing Engine NOx Emissions Calculations

Existing Engine: Manufacturer: _____

Model Year Engine: _____

Equipment Type: _____

Serial Number: _____

Fuel Type: ☐ Diesel ☐ Nat'l Gas ☐ Biogas ☐ Other: _____

Maximum Rated Brake Horsepower: _____ $bhp_{maximum}$

Annual Hours of Operation: x _____ Hours/Year

NOx Emission Factor: x _____ g/bhp-hour

Load Factor: x _____

Conversion to Tons: x 1 / 907,200 Ton/grams

Engine #1 Annual NOx Emissions (EE) = _____ Tons/Year

Emission factor source:

New Engine NOx Emissions Calculations (Report as zero emissions if electric)

New Engine: Manufacturer: _____

Model Year Engine: _____

Equipment Type: _____

Serial Number (if available): _____

Fuel Type: ☐ Nat'l Gas ☐ Biogas ☐ Other:

Maximum rated brake horsepower: _____ $bhp_{maximum}$

Expected annual hours of operation: x _____ Hours/Year

NOx Emission Factor : x _____ g/bhp-hour

Load Factor : x _____

Conversion to Tons: x 1 / 907,200 Ton/grams

New Equipment Annual NOx Emissions (NE) = _____ Tons/Year

Emission factor source:

Calculation Results

Total Annual NOx Emission Reductions = (EE) – (NE) = _____ Tons/Year

Percent NOx Emission Reduction = (EE – NE) / (EE) x 100 = _____ %

Eligible for EQIP funding if NOx reductions are at least 15%

NRCS

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality - Combustion System Air Emissions Management
Engine Retrofit Emissions Reduction Determination

Agricultural Producer: _____ Date: _____

Engine Emissions Calculations Prior to Retrofit

Manufacturer: _____

Model Year Engine: _____ Engine Displacement: _____ Liters

Engine Family No: _____

Fuel Type: ☐ Diesel ☐ Nat'l Gas ☐ Biogas ☐ Other: _____

Serial Number: _____

Equipment Type: _____

Vehicle VIN No: _____

		NOx	ROG	PM10	
Maximum Rated Brake Horsepower:					$bhp_{maximum}$
Annual Hours of Operation:	x				Hours/Year
Emission Factors:	x				g/bhp-hr
Load Factor (if applicable):	x				
Conversion to Tons:	x	1 / 907,200	1 / 907,200	1 / 907,200	Ton/grams
Annual Emissions (AE) =					Tons/Year

Verified Retrofit Technology Emission Reductions

Product Name: _____

Model Name: _____

Retrofit Technology: _____

ARB PM Level: ☐ Level 3 ☐ Level 2 ☐ Level 1 ☐ Not Applicable

	NOx	ROG	PM10	
Retrofit % Emission Reduction:				VRT%

Calculation Results

	NOx	ROG	PM10	
Annual Emission Reduced [AE x (VRT% / 100)]:				Tons/Year
Actual Emissions [AE x (100 – VRT%) / 100]:				Tons/Year

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality - Conservation Tillage Residue Management

Producer Name:		Application No:	Date:
CTU:	Field No:	Crop:	Environmental Points
Technician:			Planned / Benchmark / Difference

	Air Quality Resource						Planned	Benchmark	Difference
		12 Points	**10 Points**	**8 Points**	**4 Points**	**0 Points**			
1	*Percent planned residue to be left on the soil surface prior to planting*	*>50%*	*49 - 30%*	*29 - 15%*	*Less than 15%*	*0%*			
		12 Points	**10 Points**	**8 Points**	**4 Points**	**0 Points**			
2	*Planned extent of CT involvement and total PM10 emission reductions*	*Con Tillage will reduce PM10 for a cumulative 5 or more year period on entire CTU*	*Con Tillage will reduce PM10 for a cumulative 2 to 4 year period on entire CTU*	*Con Tillage will reduce PM10 for a cumulative 5 or more year period on part of the CTU*	*Con Tillage will reduce PM10 for a 2 to 4 year period on part of the CTU*	*Con Tillage is not included in a Cons Plan*			
		12 Points	**10 Points**	**8 Points**	**4 Points**	**0 Points**			
3	*Potential erodibility of soil due to wind (use HEL soils list)*	*CTU contains 75% or more HEL soils*	*CTU contains 50% – 74% HEL soils*	*CTU contains 25% – 49% HEL soils*	*CTU contains less than 25% HEL soils*	*CTU contains no HEL soils*		0	
		14 Points	**12 Points**	**10 Points**	**8 Points**	**0 Points**			
4	*Planned PM10 emission reductions during critical elevated emission time periods*	*50% or more planned reduction of field passes during September through November*	*50% or more planned reduction of field passes during June through November*	*50% or more planned reduction of field passes during March through November*	*50% or more planned reduction field passes during December through November*	*Less than 50% planned reduction of field passes*		0	
		20 Points	**15 Points**	**10 Points**	**0 Points**				
5	*Planned reduction of the percent of the soil surface tilled*	*No Till disturbs 5% to 10% of soil surface*	*Strip Till disturbs 10% to 25% of soil surface*	*Ridge Till disturbs 25% to 35% of soil surface*	*Tillage practices disturb 100% of soil surface*				
		25 Points	**20 Points**	**15 Points**	**5 Points**	**0 Points**			
6	*Planned percent reduction of tillage passes from baseline (use worksheet)*	*Reduction of field passes by 60% or more from baseline*	*Reduction of field passes by 40% to 59% from baseline*	*Reduction of field passes by 20% to 39% from baseline*	*Reduction of field passes by less than 20% from baseline*	*No reduction of field passes from baseline*		0	
		25 Points	**20 Points**	**15 Points**	**10 Points**	**0 Points**			
7	*Planned percent PM10 reduction achieved from implementing CT system (use worksheet)*	*Reduction of PM10 by 60% or more from benchmark*	*Reduction of field passes by 40% to 59% from benchmark*	*Reduction of field passes by 20% to 39% from benchmark*	*Reduction of PM10 by <20% from benchmark conditions*	*No reduction on PM10 from benchmark*		0	
						Total Points:			
						Total Environmental Score (Planned – Benchmark):			

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality – Conservation Tillage Residue Management Worksheet

Client Name:		Application No:	Date:
CTU:	Field No:	Crop Rotation:	
Technician:		Crop Type:	

	Determine baseline field passes and PM10 emission levels			**Determine reduced field passes and PM10 emission reductions due to adoption of Conservation Tillage**	
	Number of Baseline Tillage Practices	**PM10 Emissions (lbs/acre)**		Number of Conservation Tillage Practices	**PM10 Emissions (lbs/acre)**
1			1		
2			2		
3			3		
4			4		
5			5		
6			6		
7			7		
8			8		
9			9		
10			10		
11			11		
12			12		
13			13		
14			14		
15			15		
16			16		
17			17		
18			18		
19			19		
20			20		
Total Passes:			**Total Passes:**		
Total PM10 Emissions (lbs/acre):			**Total PM10 Emissions (lbs/acre):**		

Reduction of Field Tillage Passes		**PM10 Emission Reductions per Acre**	
Number of baseline field passes:		Baseline PM10 Emissions:	
Number of CT field passes:		CT PM10 Emissions:	
Difference in number of passes:		Difference in PM10 Emissions:	
% Reduction of tillage passes: % = (Baseline passes – CT passes)/Baseline passes x 100		% PM10 Reduction: % = (Baseline PM10 – CT PM10)/Baseline PM10 x 100	

	Total Reductions for the Entire Crop Rotation					
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
% Reduction in Tillage Passes:						
% Reduction in PM10 Emissions:						

Average Percent Tillage Passes Reduced for Entire Rotation:	
Average Percent PM10 Reduced for Entire Rotation:	

Note: Complete one worksheet for each crop

Land Preparation Emission Factors

Category	Prep Operation	Lbs PM10/Acre-pass
Root Cutting	Root Cutting	0.3
Weeding	List	0.8
	List & Fertilize	
	Listing	
	Roll	
	Spring Tooth	
	Bed Preparation	
	Seed Bed Preparation	
	Shape Beds	
	Shape Beds & Roll	
	Shaping	
	Terrace	
Disking, Tilling, Chiseling	Chisel	1.2
	Plow	
	Mulch Beds	
	Disk	
	Disk & Furrow-out	
	Disk & Roll	
	Finish Disk	
	Harrow Disk	
	Post Burn/Harvest Disk	
	Stubble Disk	
	Unspecified Operation	
	General Land Prep	
Ripping, Subsoiling	Subsoil	4.6
	Subsoil-deep chisel	
Land Planing & Floating	Float	12.5
	3 Wheel Plane	
	Land Plane	
	Laser Level	
	Level	
	Level (new vineyards)	
	Plane	

Detailed Documentation for Fugitive Dust and Ammonia
Emission Inventory Changes for the SJVUAPCD Particulate Matter SIP
(California Air Resources Board, April 2003)

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality – Dust Control on Unpaved Farm Roads & Equipment Yards

Producer Name:	Application No:	Date:
CTU:	Other:	
Technician:		

	Air Quality Resource						Environmental Points		
							Planned	**Benchmark**	**Difference**
		20 Points	**15 Points**	**10 Points**	**5 Points**				
1	*Impacts to public health and safety due to proximity of activities on CTU to public use areas*	*At least 75%of the planned project area is within ¼ mile of public use area**	*50% to 75% of planned project area is within ¼ mile of public use area**	*25% to 50% of planned project area is within ¼ mile of public use area**	*Less than 25% of the planned project area is within ¼ mile of public use area**			0	
		10 Points	**8 Points**	**5 Points**	**3 Points**				
2	*Extent of planned conservation practice treatment*	*At least 75% of roads and other areas on CTU will be treated*	*51 – 75% of roads and other areas on CTU will be treated*	*25 – 50% of roads and other areas on CTU will be treated*	*Less than 25% of roads and other areas on CTU will be treated*			0	
		20 Points	**15 Points**	**10 Points**	**5 Points**	**0 Points**			
3	*Annual emission reductions (NOx, PM10, PM2.5)*	*Planned treatment areas with at least 75 vehicle daily trips (VDT) at any one time during the year*	*Planned treatment areas with 50 to 74 VDT at any one time during the year*	*Planned treatment areas with 25 – 49 VDT at any one time during the year*	*Planned treatment areas with 10 – 24 VDT at any one time during the year*	*Planned treatment areas with less than 10 VDT at any one time during the year*		0	
		10 Points	**5 Points**	**3 Points**	**1 Point**	**0 Points**			
4	*PM10 potential of surface soil*	*Soils with clay content of at least 40% and SAR >8*	*Soils with a clay content of at least 20% and SAR >8*	*Soils with a clay content of at least 40% or 16% or more of Organic Material*	*Soils with a clay content of at least 20%*	*All other soils*		0	
		15 Points	**10 Points**	**5 Points**	**3 Points**	**0 Points**			
5	*Level of road and area treatment planned*	*Permanent treatment, includes grading, road base, and surface treatments providing PM10 control for over five years*	*Treatment provides a substantial PM10 reduction over SC250 road oil treatment, including oil sand, Penn-suppress®, or Soil Sement®*	*Treatment with SC800*	*Treatment with SC250*	*No treatment of road or surface area*			
	Public use area: Include, but not limited to: homes, urban areas, sub-divisions, schools, parks, and federal and state highways.					*Total Points:*			
						Total Environmental Score (Planned – Benchmark):			

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality – Integrated Pest Management

Producer Name:		Application No:	Date:
CTU:	Field No:	Crop:	Environmental Points
Technician:			Planned / Benchmark / Difference

	Air Quality Resource					Planned	Benchmark	Difference
		15 Points	**12 Points**	**8 Points**	**5 Points**			
1	*Current use of high VOC materials**	*Producer uses high VOC materials on > 85% of farmed acres*	*Producer uses high VOC materials on > 75% of farmed acres*	*Producer uses high VOC materials on > 50% of farmed acres*	*Producer uses high VOC materials on < 50% of farmed acres*			
		15 Points	**12 Points**	**8 Points**	**5 Points**			
2	*Extent of planned conservation practice treatment*	*Greater than 75% of acres on CTU will be under contract for 595*	*51 – 75% of acres on CTU will be under contract for 595*	*25 – 50% of acres on CTU will be under contract for 595*	*Less than 25% of acres on CTU will be under contract for 595*		0	
		15 Points	**12 Points**	**8 Points**	**5 Points**			
3	*Level of planned pest management*	*UC IPM YRP Reduced VOC Level 2*	*UC IPM YRP Reduced VOC Level 1*	*Reduced VOC Level 2*	*Reduced VOC Level 1*		0	
		15 Points	**12Points**	**8 Points**	**0 Points**			
4	*Treatment*	*Products contain no VOCs*	*Most VOC containing materials are applied in non-critical time period of August to March*	*Some VOC containing materials are applied in critical time of April – July*	*Most VOC containing materials are applied in critical time period of April - July*			
		15 Points	**12 Points**	**8 Points**	**0 Points**			
5	*Number of Qualifying applications*	*No high VOC applications in critical time period*	*One high VOC applications in critical time period*	*Two or Three high VOC applications in critical time period*	*Four or more high VOC applications in critical time period*			
					Total Points:			

Total Environmental Score (Planned – Benchmark):

** High VOC materials are Emulsifiable Concentrate (EC) formulations, high VOC formulation gibberellins, or soil fumigants*

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality – Precision Pest Management – Precision Spray

Producer Name:		Application No:	Date:
CTU:	Field No:	Crop:	Environmental Points
Technician:			

	Air Quality Resource						Planned	Benchmark	Difference
		20 Points	**15 Points**	**10 Points**	**5 Points**				
1	*Impacts to public health and safety due to proximity of activities on CTU to public use areas*	*Planned project is located within ¼ mile of public use area**	*Planned project is located within ¼ to ½ mile of public use area**	*Planned project is located at least ½ to one mile of public use area**	*Planned project is over one mile from public use area**			0	
		10 Points	**8 Points**	**5 Points**	**3 Points**				
2	*Extent of planned conservation practice treatment*	*Greater than 75% of crops on CTU will be treated with precision spray technology*	*51 – 75% of crops on CTU will be treated with precision spray technology*	*25 – 50% of crops on CTU will be treated with precision spray technology*	*Less than 25% of crops on CTU will be treated with precision spray technology*			0	
		15 Points	**10 Points**	**5 Points**	**0 Points**				
3	*Additional Volatile Organic Compound (VOC) mitigation*	*Organically Grown*	*Following an UC YR IPM Plan*	*Uses some Integrated Pest Mgt, but not exclusively*	*No alternative for mitigation is in place*				
		10 Points	**8 Points**	**5 Points**	**3 Points**	**0 Points**			
4	*Age of crop*	*Newly planted orchard or vineyard*	*Orchard or vineyard is 1 – 3 years old*	*Orchard or vineyard is 4 – 5 years old*	*Orchard or vineyard is 6 to 10 years old*	*Orchard or vineyard is over 10 years old*		0	
		15 Points	**10 Points**	**5 Points**	**3 Points**				
5	*Treatment Timing*	*No VOC containing materials are used*	*Most VOC containing materials are applied in non-critical time of Aug – March*	*Some VOC containing materials are applied in critical time period of April – July*	*Most VOC containing materials are applied in critical time period of April – July*				
		10 Points	**8 Points**	**5 Points**	**0 Points**				
6	*Number of Qualifying Passes*	*Two or less passes in critical time period*	*Three or four passes in critical time period*	*Five to seven passes in critical time period*	*Eight or more passes in critical time period*				
						Total Points:			

Total Environmental Score (Planned – Benchmark):

**Public use area: Include, but not limited to: homes, urban areas, sub-divisions, schools, parks, and federal and state highways.*

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality – Precision Pest Management – Sprinkler Treatments Following Soil Fumigation

Producer Name:		Application No:	Date:
CTU:	Field No:	Crop:	Environmental Points
Technician:			Planned / Benchmark / Difference

	Air Quality Resource					Planned	Benchmark	Difference
		20 Points	**15 Points**	**10 Points**	**5 Points**			
1	*Impacts to public health and safety due to proximity of activities on CTU to public use areas*	*Planned project is located within ¼ mile of public use area**	*Planned project is located within ¼ to ½ mile of public use area**	*Planned project is located at least ½ to one mile of public use area**	*Planned project is over one mile from public use area**		0	
		20 Points	**15 Points**	**10 Points**	**5 Points**			
2	*Extent of planned conservation practice treatment*	*Greater than 75% of crops on CTU will be treated with soil fumigants followed by specified sprinkler treatments.*	*51 – 75% of crops on CTU will be treated with soil fumigants followed by specified sprinkler treatments.*	*25 – 50% of crops on CTU will be treated with soil fumigants followed by specified sprinkler treatments.*	*Less than 25% of crops on CTU will be treated with soil fumigants followed by specified sprinkler treatments.*		0	
		20 Points	**15 Points**	**10 Points**	**0 Points**			
3	*IPM in use as Volatile Organic Compound (VOC) mitigation*	*A Year Round UCIPM program is in place.*	*A UC Pest Management Guide is used for at least one major pest.*	*Uses UC IPM monitoring methods and treatment thresholds*	*IPM methods do not include UC IPM recommended monitoring and thresholds*			
		20 Points	**15 Points**	**5 Points**	**0 Points**			
4	*Treatment Timing*	*All VOC containing materials are applied in non-critical time of Aug – March*	*Most VOC containing materials are applied in non-critical time period of Aug – March*	*Some VOC containing materials are applied in critical time of April – July*	*Most VOC containing materials are applied in critical time period of April – Jul*			
					Total Points:			

Total Environmental Score (Planned – Benchmark):

Public use area: Include, but not limited to: homes, urban areas, sub-divisions, schools, parks, and federal and state highways.

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality - Treated Wood Stake Disposal – Obstruction Removal

Producer Name:	Application No:	Date:
CTU:	Other:	
Technician:		

	Air Quality Resource					Environmental Points		
						Planned	**Benchmark**	**Difference**
		20 Points	**15 Points**	**10 Points**	**5 Points**			
1	*Impacts to public health and safety due to proximity of activities on CTU to public use area*	*Planned project is located within one mile of public use area**	*Planned project is located within 1 to 3 miles of public use area**	*Planned project is located at least within 3 to 5 miles of public use area**	*Planned project is over five miles to public use area**		0	
		10 Points	**0 Points**					
2	*Treated wood stakes are presently stacked on site*	*Yes*	*No*				0	
		10 Points	**0 Points**					
3	*Will the producer use treated stakes in another field?*	*No*	*Yes*				0	
		10 Points	**0 Points**					
4	*Are or will any treated stakes be used for supporting/propping of new or existing orchard or vineyard planting*	*No*	*Yes*				0	
		10 Points	**8 Points**	**5 Points**	**3 Points**			
5	*Soil Leaching Potential from WIN-PST*	*High Potential*	*Intermediate Potential*	*Low Potential*	*Very Low Potential*		0	
					Total Points:		0	
					Total Environmental Score (Planned – Benchmark):			

**Public use area: Include, but not limited to: homes, urban areas, sub-divisions, schools, parks, and federal and state highways.*

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality – Liquid Manure Injection – Waste Utilization

Producer Name:		Application No:	Date:
CTU:	Field No:	Crop:	Environmental Points
Technician:			

	Air Quality Resource					Planned	Benchmark	Difference
		20 Points	**15 Points**	**10 Points**	**5 Points**			
1	*Impacts to public health and safety due to proximity of activities on CTU to public use areas*	*Planned project is located within one mile of public use area**	*Planned project is located within 1 to 3 miles of public use area**	*Planned project is located at least within 3 to 5 miles of public use area**	*Planned project is over five miles to public use area**		0	
		20 Points	**10 Points**	**0 Points**				
2	*Application Rate*	*Rate determined through a Conservation Nutrient Management Planning*	*Rate determined through soil test results*	*No soil testing done*				
		20 Points	**10 Points**	**0 Points**				
3	*Monitoring*	*Monitoring done as per CNMP*	*Visual field monitoring*	*No monitoring done*				
		10 Points	**5 Points**	**0 Points**				
4	*Land Use*	*Total N applied does not exceed 1.4 times crop removal***	*Total N applied does not exceed 2.0 times crop removal****	*Total N applied exceeds 2.0 times crop removal*				
					Total Points:			
					Total Environmental Score (Planned – Benchmark):			

**Public use area: Include, but not limited to: homes, urban areas, sub-divisions, schools, parks, and federal and state highways.*
***1.4 times crop removal is the ratio of total N applied verses N removed at crop harvest as specified by the Regional Water Quality Control Board – Region 5*
****2.0 times crop removal is the ratio of total N applied verses N removed at crop harvest referenced in the Dairy Planning Tool - Farm N Balance (EWS2-1) tab*

Environmental Quality Incentives Program (EQIP)
CALIFORNIA RANKING CRITERIA WORKSHEET

2009

Air Quality - Windbreak/Shelterbelt Establishment

Producer Name:	Application No:	Date:
CTU:	Other:	
Technician:		

	Air Quality Resource					Environmental Points		
						Planned	**Benchmark**	**Difference**
		10 Points	**5 Points**					
1	*CAF has been regulated to install windbreak*	*Yes*	*No*				0	
		20 Points	**15 Points**	**10 Points**	**5 Points**			
2	*Impacts to public health and safety due to proximity of activities on CTU to public use areas*	*Planned project is located within one mile of public use area**	*Planned project is located within 1 to 3 miles of public use area**	*Planned project is located at least within 3 to 5 miles of public use area**	*Planned project is over five miles to public use area**		0	
		10 Points	**8 Points**	**5 Points**	**3 Points**			
3	*Density of planned conservation practice treatment*	*Plants, trees and shrubs will be planted over six rows thick*	*Plants, trees and shrubs will be planted 4 – 5 rows thick*	*Plants, trees and shrubs will be planted 3 rows thick*	*Plants, trees and shrubs will be planed less than 3 rows thick*		0	
		10 Points	**8 Points**	**5 Points**	**0 Points**			
4	*Diversity of species to minimize odor drift using NRCS standards*	*Species to be planted are demonstrated to have positive effect as windbreaks*	*Species to be planted are demonstrated to have moderate effect as windbreaks*	*Species to be planted are demonstrated to have low effect as windbreaks*	*Species to be planted are demonstrated to have no effect as windbreaks*			
		10 Points	**5 Points**	**0 Points**				
5	*Planting Configuration*	*Planting is downwind of all areas of concern*	*Planting is downwind of some areas of concern*	*Planting will not reduce emissions*				
					Total Points:			
					Total Environmental Score (Planned – Benchmark):			

**Public use area: Include, but not limited to: homes, urban areas, sub-divisions, schools, parks, and federal and state highways.*

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Appendix B

Agricultural Emissions Reductions
CIG (b) Guidelines, Policies, and Procedures

Accepted Air Quality Conservation Practices

Listed are the accepted NRCS practices and target pollutants for California air quality issues.

Practice	Practice Code	Direct PM		PM2.5	Ozone, PM2.5	
		PM10	PM2.5	NH_3	VOC	NOx
Chipping Almond and Walnut Pruning, and Chipping Orchards and Vineyard Removals *(Forest Slash Treatment)*	384	X	X		X	X
Combustion System Air Emissions Management	723	X	X		X	X
Conservation Tillage Residue Management (*Residue and Tillage Management, No-Till, Strip-Till, & Mulch Till*)	329 345	X	X	X	X	X
Dust Control on Unpaved Farm Roads and Equipment Yards	729	X	X			
Pest Management	595				X	
Precision Pest Management	718				X	
Treated Wood Stake Disposal (*Obstruction Removal*)	500	X	X			
Waste Utilization – Manure Injection	633			X	X	
Windbreak/Shelterbelt Establishment (at Confined Animal Facilities)	380	X	X	X		

Appendix B

Practice Program Description
Table of Contents

The individual Conservation Practice Standards may be obtained by visiting a NRCS Service Center or via Internet on the electronic Field Office Technical Guide at: http://www.nrcs.usda.gov/technical/efotg/.

Chipping Annual Almond and Walnut Pruning
Chipping Removed Orchards and Vineyards

Forest Slash Treatment
(Code 384)

Emission reductions are achieved by chipping agricultural crop residue from orchards instead of burning them. The combustion process from open burning can emit significant amounts of particulate matter (PM10 and PM2.5), ozone precursors (NOx and VOC) and carbon monoxide emissions. Open burning may only occur on "permissive burn days" or days when a burn allocation is available. In addition, open burning is being or has been phased out in some areas of California due to air quality nonattainment concerns.

Agricultural Burning Emission Factors (lbs emissions/acre)

Crop	PM10	PM2.5	NOx	SO2	VOC	CO
Almond Pruning	7.0	6.7	5.9	0.1	5.2	52.2
Walnut Pruning	5.0	4.8	5.4	2.4	5.8	80.4
Orchard Removals	234.0	219.0	156.0	3.0	189.0	1,980.0
Vineyard Removals	117.0	109.5	78.0	1.5	102.0	990.0

Source: San Joaquin Valley APCD Smoke Management Program

Chipping pruning from almonds or walnut orchards is eligible for payments provided that the orchards have not been chipped in prior years. Payments are allowed on almond and walnut orchards that are at the fourth leaf stage or older.

Chipping removed orchards of any type or vineyards are eligible for payments. Orchards that have had tree tops cut off for use as firewood are not eligible.

Wood chips may be used by leaving them in the orchard to decompose, hauled to a biomass-powered electric generation plant for use as fuel, composting, or placed on an unpaved road or surface to control fugitive dust.

Payment Schedule

Practice	NRCS Payment
Chipping Almond & Walnut Pruning	$20.00 / acre
Chipping Removed Orchards	$100.00 / acre
Chipping Removed Vineyards	$100.00 / acre

Combustion Systems Air Emissions Management (Code 723)

Emission reductions are achieved by improving an existing high polluting combustion system. This category can provide real emission reduction benefits by retiring the high polluting equipment earlier than through normal attrition.

In 1998, the California Air Resources Board identified diesel particulate matter as a toxic air contaminant. Exposure to diesel emissions may result in negative health affects. Diesel emissions also include oxides of Nitrogen (NOx), a precursor to ozone in smog formation that has also been shown to cause adverse health affects. Cost-effective measures for reducing the toxic air contaminants and NOx emissions can be achieve with early replacement of older agricultural equipment.

Eligible Projects: Eligible projects involve replacing a high polluting, fully functional engine with newer reduced-emission engine meeting the most current model year California emissions standards.

Payments are available to replace an existing engine (engine repower) with a newer emissions certified engine instead of rebuilding the existing engine to its original specifications. The replaced equipment must perform a similar function as the old equipment.

Replacing an engine, however, may not always result in the best value. Replacing only the engine on equipment may not be possible due to design constraints or the diminished value of the old equipment may not justify investing significant funds for engine replacement. These situations will be evaluated on a case-by-case basis. If approved, payments will be made for the reductions achieved from equipment replaced with new emissions technology.

If repowering with an engine meeting the current applicable emission standard is technically unfeasible, unsafe, or cost-prohibitive to develop at the time funds are obligated, then the engine must meet the most current practicable, previously applicable emission standard. The participant must submit a written statement of reason provided by the engine manufacturer verifying that a particular piece of equipment cannot accommodate an engine meeting current specifications without major modifications, safety risks, exorbitant costs, or for which engine or equipment models for repowers are not available or feasible.

The replacement engine and equipment must be certified for sale in California and meet the most recent model year emission standards and/or emissions standards established by the local APCD or AQMD, if applicable. Once in operation, the engine and equipment must be used exclusively in California.

Significant air quality benefits can result if two or more engines are replaced with a single engine performing similar duties. Eligibility will be evaluated on a case-by-case basis by examining the estimated emission reductions and cost effectiveness.

The upgrading or installation of fueling stations and infrastructure is not eligible, including the expense of installing fuel storage tanks, construction of fueling depots, or construction of biodiesel manufacturing facilities.

Retrofits to an engine may be eligible. A retrofit is the installation of an emission control system verified by the ARB, such as diesel particulate filters, diesel oxidation catalysts, or selective catalyst reduction systems. Retrofit technology may be installed on an existing engine that results in meeting current emission standards or on a new engine that results in additional emission reductions.

1. For an uncontrolled diesel engine, the retrofit kit must be verified to reduce NOx or NOx+NMHC (non-methane hydrocarbons) emissions to the applicable current Tier standard for a given engine type and size.
2. For an uncontrolled spark-ignited engine, the retrofit kit must be verified to reduce NOx+NMHC emissions to the currently applicable standards for spark-ignited engines.
3. For an emission-certified (1996+ model year) diesel engine, the retrofit kit must be verified to reduce NOx or NOx+NMHC emissions by at least 15% from the applicable NOx or NOx+NMHC emission standard.
4. The retrofit kit to reduce PM must use the highest level ARB-verified technology available for the engine being retrofitted.

A complete list of ARB-verified retrofits may be found via the Internet at: http://www.arb.ca.gov/diesel/verdev/verdev.htm.

Ownership: The existing engine or equipment being replaced must be owned by the participant, have been used in the State of California for at least 12 months prior to the application submittal date, have some remaining life, and will be destroyed.

Destruction: Soon after being replaced, the old, existing engine and equipment (if applicable) must be destroyed. Destruction of the old engine and equipment permanently removes the existing, high emitting equipment from service and ensures that the emission reductions are real. It also prevents the existing equipment from being moved into another locale to continue emitting high levels of pollutants. The participant must therefore certify that the old equipment has been destroyed and rendered useless.

Contract Duration: A minimum two-year contract period is required. The participant must initiate the project within the first year of the contract. Payment is initiated once all contract obligations are met.

Combustion Systems Air Emissions Management (Code 723)

Section 1
Stationary Heavy-Duty Engines

This category primarily refers to stationary (i.e. bolted to a foundation or concrete slab) or portable (i.e. mounted on a trailer or skid, but does not drive a vehicle) engines, and may include auxiliary engines on mobile equipment provided that the auxiliary engine does not propel a vehicle. The majority of these engines are used for irrigation.

The California Air Resource Board (ARB) established emission standards and requirements that regulate the sale, purchase, rental, lease, and operation of diesel engines, including stationary and portable equipment used exclusively in agriculture. In addition, an Air Pollution Control District (APCD) or Air Quality Management District (AQMD) may impose emission standards through a rule or require permits with emission limits that may be more restrictive than required by the ARB. The participant should first consult with the local APCD or AQMD to determine permitting and emissions requirements prior to seeking assistance from the NRCS.

Program Requirements

Existing equipment:

A) The existing engine must be uncontrolled or certified to an early Tier level.

B) Rated at 50 or more maximum brake horsepower (37 or more kilowatts).

C) The participant must own and operate the equipment in California for at least the past 12 months.

D) The existing equipment is situated at its operation location and be in operational condition to qualify.

Replacement equipment:

A) The new replacement engine and equipment must be certified for sale in California and meet the most recent model year emission standards and/or emissions standards established by the local APCD or AQMD, if applicable. Once in operation, the engine and equipment must be used exclusively in California.

B) California Air Resources Board Executive Orders for certified off-road diesel engines are posted on the Internet at http://www.arb.ca.gov/msprog/offroad/cert/cert/php.

C) Spark-ignited engines must meet or exceed the applicable emission standards established by the ARB or local APCD or AQMD.

D) Replacing an engine with an electric motor rated at 50 hp (37 kilowatts) or more is eligible.

E) The horsepower rating of the replacement equipment engine must be within 25% of the original manufacturer rated horsepower (baseline) for the old equipment engine. This may be waived if the original horsepower range is not available.

F) The replacement engine must show at least a 15% NOx reduction and no increase in particulate matter emissions, compared with the applicable standards or emission levels for that engine year and type of application through ARB Certification Testing, USEPA Certification Testing, or emissions testing at a laboratory approved by the USEPA or ARB.

G) Have an approved Authority to Construct from the local APCD or AQMD prior to application, if a permit is required.

H) An APCD or AQMD may require an emissions source test on the new engine, depending on the conditions specified on an applicable Authority to Construct or Permit to Operate. Source testing using accepted testing protocols must be completed by an ARB-certified independent contractor to the satisfaction of the APCD or AQMD before payments will be provided. A list of approved independent contractors is posted on the Internet at http://www.arb.ca.gov/ba/icp/current.pdf

I) The participant is advised to maintain a record of new equipment usage for at least the first five years of operation. Hours of operation may be accomplished by recording the readings from a fully operational hour meter at the beginning and end of each year.

Existing Equipment Destruction

The old, existing engine must be destroyed. Destruction of the engine permanently removes the existing, high emitting equipment from service and ensures that the emission reductions are real. It also prevents the existing equipment from being moved into another locale to continue emitting high levels of pollutants.

A) The existing engine may be rendered inoperable and destroyed by following methods:

(1) Punching a hole not smaller than four inches in diameter through the engine block, or

(2) Crushing or scrapping the engine at a salvage yard.

B) The participant must certify that the existing equipment has been destroyed and rendered useless.

(1) The certification must describe the location where the destroyed engine is located or where it was scrapped, the engine make and serial number, how the engine was destroyed, and the date the engine was destroyed. Photographs are recommended.

(2) If scrapped at a salvage yard, a certification of equipment destruction may be provided to the participant and NRCS by the salvage yard operator.

(3) NRCS staff may follow-up with a site visit to verify engine destruction.

Retrofits

Retrofit projects must install ARB-verified emission control systems meeting the following minimum standards:

A) For an uncontrolled diesel engine, the retrofit kit that must be verified to reduce NOx or NOx+NMHC (non-methane hydrocarbons) emissions to the applicable current Tier standard for a given engine type and size.

B) For an uncontrolled spark-ignited engine, the retrofit kit must be verified to reduce NOx+NMHC emissions to the currently applicable standards for spark-ignited engines.

C) For an emission-certified (1996+ model year) diesel engine, the retrofit kit must be verified to reduce NOx or NOx+NMHC emissions by at least 15% from the applicable NOx or NOx+NMHC emission standard.

D) The retrofit kit to reduce PM must use the highest level ARB-verified technology available for the engine being retrofitted.

A complete list of ARB-verified retrofits may be found via the Internet at: http://www.arb.ca.gov/diesel/verdev/verdev.htm.

Payment Schedule

Engine Repower (Engine Replacement)	
Horsepower Range (max bhp rating)	**NRCS Payment**
50 – 99	$6,500.00
100 – 174	$8,500.00
175 – 250	$13,500.00
251 – 300	$16,500.00
301 – 399	$19,000.00
400 – 499	$23,000.00
500 – 599	$27,000.00
600 +	$45,000.00

New Electric Motor (Engine Repower to Electric Motor)		
Horsepower Range	**KW Range**	**NRCS Payment**
50 – 70	37 - 52	$5,500.00
71 – 100	53 - 74	$7,000.00
101 – 125	75 - 93	$11,000.00
126 – 150	94 - 111	$12,500.00
151 – 200	112 - 149	$13,500.00
201 – 300	150 - 223	$18,500.00
301 – 400	224 - 298	$25,000.00
401 – 500	299 - 372	$37,500.00
500 +	373 +	$42,500.00

Engine Retrofit (NOx, PM, or both)	
Horsepower Range (bhp)	**NRCS Payment**
50 – 250	$3,000.00
251 – 499	$6,000.00
500+	$10,000.00

Combustion Systems Air Emissions Management (Code 723)

Section 2
Mobile Off-Road Agricultural Equipment

Equipment in this category includes: tractors, bailers, harvesters, combines, loaders, forklifts, and other agricultural off-road support equipment. These engines provide power to self-propel a vehicle and do not include portable engines, auxiliary engines on mobile equipment, and on-road mobile equipment.

Program Requirements

Existing equipment:

A) An existing engine must be uncontrolled or certified to an early Tier level.

B) Rated at 50 or more maximum brake horsepower (37 or more kilowatts).

C) The participant must own and operate the equipment in California for at least the past 12 months.

D) The existing equipment is in operational condition to qualify. At a minimum:

(1) The tires are in usable condition (able to hold air, sufficient tread, etc.)
(2) Steering is operational
(3) The equipment is able to start-up and move backwards and forwards
(4) Buckets, blades, hydraulics, rollers, etc. are in working order
(5) Undercarriage is structurally sound
(6) Fuel tank is in usable condition
(7) No parts have been stripped
(8) Equipment has not been vandalized

E) Significant air quality benefits can result if two or more qualifying engines are replaced with a single engine performing similar duties. Eligibility will be evaluated on a case-by-case basis by examining the estimated emission reductions and cost effectiveness. This may be accomplished by summing the annual hours of operation and emissions to calculate the emission benefits for ranking purposes.

F) Two or more like-for-like engines or equipment may be combined for a single, new engine or equipment replacement. The existing equipment by themselves must serve a similar function and meet eligibility requirements.

G) Forklifts are eligible for engine repower or equipment replacement with electric-powered forklifts.

Replacement equipment:

A) The new replacement engine and equipment must be certified for sale in California and meet the most recent model year emission standards and/or emissions standards established by the local APCD or AQMD, if applicable. Once in operation, the engine and equipment must be used exclusively in California.

B) California Air Resources Board Executive Orders for certified off-road diesel engines are posted on the Internet at http://www.arb.ca.gov/msprog/offroad/cert/cert/php.

C) An engine repower may include a new Original Equipment Manufactured (OEM) remanufactured, or an ARB certified/recertified rebuilt off-road engine meeting the latest California emission standards.

D) The replacement equipment must serve the same function and perform the same work equivalent as the existing equipment. This requirement may be waived for instances where general purpose farming equipment changes commodities.

E) The horsepower rating for the replacement equipment engine must be within 25% of the original manufacturer rated horsepower (baseline) for the existing equipment engine. This may be waived if:

(1) The original horsepower range is not available.

(2) The higher horsepower replacement equipment is the result of implementing a conservation system.

F) The replacement engine must show at least a 15% NOx reduction and no net increase in particulate matter emissions, compared with the applicable standards or emission levels for that engine year and type of application through ARB Certification Testing, USEPA Certification Testing, or emissions testing at a laboratory approved by the USEPA or ARB.

G) The participant is advised to maintain a record of new equipment usage for at least the first five years of operation. Hours of operation may be accomplished by recording the readings from a fully operational hour meter at the beginning and end of each year.

H) For replacement with electric equipment, the participant must include a description whether battery chargers have been installed. If not, the participant should describe the number of the battery chargers to be installed.

I) At this time, replacement with zero-emissions equipment other than electric (i.e. fuel cell equipment) is not eligible for payments.

Existing Equipment Destruction

The existing equipment must be destroyed. Destruction of the existing chassis and engine permanently removes the existing, high emitting equipment from service and ensures that the emission reductions are real. It also prevents the existing equipment from being moved into another locale to continue emitting high levels of pollutants.

A) The existing equipment may be rendered inoperable and destroyed by the following methods:

(1) Existing Engine:

a) Punching a hole not smaller than four inches in diameter through the engine block, or
b) Crushing or scrapping the engine at a salvage yard.

(2) Existing Equipment:

a) Punching a hole not smaller than four inches in diameter through the engine block and compromising the structural integrity of the equipment by cutting the structural components or frame rails, or
b) Scrapping the equipment at a salvage yard.

B) The participant must certify that the existing equipment has been destroyed and rendered useless.

(1) The certification must describe the location where the destroyed engine is located or where it was scrapped, the engine make and serial number, how the engine was destroyed, and the date the engine was destroyed. For off-road mobile equipment destruction, also include the make, model, year, and equipment serial number. Photographs are recommended.

(2) If scrapped at a salvage yard, a certification of equipment destruction may be provided to the participant and NRCS by the salvage yard operator.

(3) NRCS staff may follow-up with a site visit to verify engine destruction.

Retrofits

Retrofit projects must install ARB-verified emission control systems meeting the following minimum standards:

A) For an uncontrolled diesel engine, the retrofit kit that must be verified to reduce NOx or NOx+NMHC (non-methane hydrocarbons) emissions to the applicable current Tier standard for a given engine type and size.

B) For an emission-certified (1996+ model year) diesel engine, the retrofit kit must be verified to reduce NOx or NOx+NMHC emissions by at least 15% from the applicable NOx or NOx+NMHC emission standard.

C) The retrofit kit to reduce PM must use the highest level ARB-verified technology available for the engine being retrofitted.

A complete list of ARB-verified retrofits may be found via the Internet at: http://www.arb.ca.gov/diesel/verdev/verdev.htm.

Payment Schedule

Engine Repower (Engine Replacement)	
Horsepower Range (max bhp rating)	**NRCS Payment**
50 – 99	$6,500.00
100 – 174	$8,500.00
175 – 250	$13,500.00
251 – 300	$16,500.00
301 – 399	$19,000.00
400 – 499	$23,000.00
500 – 599	$27,000.00
600 +	$45,000.00

Equipment Replacement	
Horsepower Range (max bhp rating)	**NRCS Payment**
50 – 109	$200.00 / bhp
110 – 149	$250.00 / bhp
150 +	$350.00 / bhp

Engine Retrofit (NOx, PM, or both)	
Horsepower Range (bhp)	**NRCS Payment**
50 – 250	$3,000.00
251 – 499	$6,000.00
500+	$10,000.00

Electric-powered Forklift Equipment Replacement	
Pound-Lift Capacity	**NRCS Payment**
Any	$3.50 / Pound-Lift

Combustion Systems Air Emissions Management (Code 723)

Section 3
Supplemental Forms & Instructions

The participant must complete the supplemental forms along with the application. The information provided will be used for determining priority and ranking for funding and payment eligibility purposes. In addition, it may be necessary for the participant to attach records, receipts, Executive Orders, estimates, or any additional information requested by NRCS staff.

The following supplemental forms include:

1. Form A: Participant Information and Project Description
2. Form B: Existing Engine Information
3. Form C: New Engine Information
4. Form D: Vendor / Installer / Other Parties

Environmental Quality Incentives Program (EQIP)
CALIFORNIA SUPPLEMENTAL APPLICATION FORM

2009

Air Quality - Combustion System Air Emissions Management
(Form A)

Participant Information

Agricultural Producer Name:			
Business Type (Farming, Custom Harvest, Packing House, etc):			
Contact Name and Title:			
Mailing Address:			
City:		State:	Zip Code:
Phone:	Fax No:	Email:	
Name of Person with Contract Signing Authority:			

I hereby certify that all information provided in the supplemental application forms with any attachments are true and correct to the best of my knowledge. I have read the separate Guidelines, Policies, and Procedures document for this program component.

Print Name	Title:
Signature:	Date:

General Project Information

Please provide a brief description of the project:	
Project Location:	
County:	No. of Emission Units to be Replaced:
Equipment Type (check one): ☐ Stationary or Portable Ag Equipment ☐ Mobile Off-Road Ag Equipment	Engine Project (check one): ☐ Engine Repower (replacing an existing engine) ☐ Equipment Replacement (new equipment and engine) ☐ Retrofit (adding verified technology to an engine)
List any other co-funding opportunities being sought for this project:	

Form A – Instructions

Participant Information

1. **Agricultural Producer Name:** The legal name of the entity that will enter into agreement with the NRCS.

2. **Business Type:** The classification of the entity that appears in the "Agricultural Producer Name" field of the application.

3. **Contact Name and Title:** The first and last name of the person that will serve as the primary contact to the NRCS through the contract life. All questions related to the proposed project will go to this individual. Please include this person's job title.

4. **Mailing Address:** The mailing address used by the Agricultural Producer. Include the City, State, and Zip Code.

5. **Phone Number:** The main phone number, including area code, for the primary contact.

6. **Fax Number:** The main fax number, including area code, for the primary contact.

7. **Email:** The email address of the primary contact.

8. **Name of Person with Contract Signing Authority:** The first and last name of the person, designated by the Agricultural Producer that will enter into binding agreements with the NRCS, to sign on the Agricultural Producer's behalf.

9. **Print Name, Title, and Signature:** Should be signed by the individual having contract signing authority or designee.

General Project Information

1. **Please provide a brief description of the project:** Briefly describe in your words what you propose for this project.

2. **Project Location:** May include address, Section Township Range, Latitude and Longitude, field or ranch name, or any other description.

3. **County:** Please identify the county where the engine or equipment is located.

4. **No. of emissions units to be replaced:** Report the number of engines proposed under this application.

5. **Equipment Type:** Select equipment type. Stationary or Portable Ag Equipment includes engines that drive irrigation wells or electric generators. Mobile Off-Road Ag Equipment includes tractors, bailers, harvesters, combines, loaders, forklifts, and other agricultural off-road support equipment. They do not include on-road agricultural equipment, such as trucks, water trucks, manure spreaders, cotton module movers, feed mixers, or nurse rigs for supplying airplanes or helicopters.

6. **Engine Project:** Select whether the project entails an engine repower or replacement, equipment replacement, or installing verified retrofit technology to an existing or new engine.

7. **List any other co-funding opportunity being sought for this project:** Seeking other funding opportunities is encouraged. Please provide the name of the agency if other fund sources are being sought.

NRCS

Environmental Quality Incentives Program (EQIP)
CALIFORNIA SUPPLEMENTAL APPLICATION FORM

2009

Air Quality - Combustion System Air Emissions Management
(Form B)

Agricultural Producer Name:

Existing Engine Information

Complete a separate form for each existing engine or equipment

Describe the type of equipment the existing engine powers:

Site Specific Location Description:	Years operated at this location:

Primary Fuel Type (check one):

- ☐ Diesel
- ☐ Biodiesel
- ☐ Natural Gas
- ☐ Biogas
- ☐ Other:

Engine Type (check one):

- ☐ Non-Tier Diesel
- ☐ Tier 1
- ☐ Tier 2
- ☐ Tier 3
- ☐ Tier 4 Interim
- ☐ Tier 4 Final
- ☐ Spark Ignited
- ☐ Other:

Verified Retrofit Technology:

☐ No retrofits have been installed on the existing engine
☐ The existing engine is equipped with the following equipment:

Manufacturer: _____

Model: _____

Verification Level: ☐ Level 1 ☐ Level 2 ☐ Level 3

Verified Emission Reductions:

ROG: % NOx: % PM: %

Engine Manufacturer and Model No:

EPA Engine Family: (If applicable)	Max Rated Brake HP:
Engine Year:	Annual fuel usage:
Engine Serial No:	Annual hours of operation:

Equipment Manufacturer & Model:

Equipment VIN No:

Equipment Model Year:	Year Purchased:

Name of Equipment Owner:

Months in Operation:

☐ Operates throughout the year

☐ January	☐ February	☐ March
☐ April	☐ May	☐ June
☐ July	☐ August	☐ September
☐ October	☐ November	☐ December

Planned location where engine or equipment will be scrapped:
(not applicable if retrofitting an existing engine)

Additional Information:

Form B – Instructions

Existing Engine Information

1. **Complete a separate form for each existing engine or equipment**.

2. **Describe the type of equipment the existing engine powers:** This may include an irrigation pump, electric generator, tractor, combine, harvester, forklift, etc.

3. **Site Specific Location Description:** If possible, a more specific location describing the specific operation location of this existing engine or equipment.

4. **Years Operated at this location:** Approximate length of time the existing engine or equipment has been operating at this location.

5. **Primary Fuel Type:** Only select the primary fuel the engine consumes.

6. **Engine Type:** Select the type of existing engine. If not know, please consult your engine vendor.

7. **Verified Retrofit Technology:** Describe the manufacturer, model, ARB-Verification Level, and the emission reductions associated with the installed technology, if applicable. Attach documentation, such as an applicable ARB Executive Order. Your engine vendor should be able to assist you with gathering this information.

8. **Engine Manufacturer and Model No:** The make and model number of the engine. For example, Cummins (make) 6BTA5.9C (model).

9. **EPA Engine Family (if available):** Include the certified engine family name assigned by the US-EPA. This information should be available through your engine vendor.

10. **Engine Year:** The year the engine model was manufactured.

11. **Engine Serial No.:** The serial number listed on the engine block.

12. **Max Rated HP**: Identify the engine rated horsepower.

13. **Annual Fuel Usage:** Amount of annual fuel usage, in gallons, by engine.

14. **Annual Hours of Operation:** Engine's annual operation in hours.

15. **Equipment Manufacturer and Model:** The make and model number of the equipment. For example, a Case (make) 721 (model).

16. **Equipment VIN:** The equipment Vehicle Identification Number.

17. **Equipment Model Year:** The model year in which the equipment was manufactured.

18. **Year Purchased:** The year the equipment was purchased.

19. **Name of Equipment Owner:** Identify equipment ownership.

20. **Months in Operation:** Select whether the engine operates throughout the year or by month.

21. **Planned location where engine or equipment will be scrapped:** Identify where equipment will be destroyed and disposed.

22. **Additional Information**: Include any additional information pertinent to this engine or equipment, including applicable permits or documentation issued by a local air district.

NRCS

Environmental Quality Incentives Program (EQIP)
CALIFORNIA SUPPLEMENTAL APPLICATION FORM

2009

Air Quality – Combustion System Air Emissions Management
(Form C)

Agricultural Producer:

New Engine Information
Verified Technology Retrofit Installation

Complete a separate form for each engine or equipment

Describe the type of equipment the engine powers:

Site Specific Location Description:

Primary Fuel Type (check one):	Engine Type (check one):	Verified Retrofit Technology:
☐ Diesel ☐ Biodiesel ☐ Natural Gas ☐ Biogas ☐ Electric ☐ Other:	☐ Tier 3 ☐ Tier 4 Interim ☐ Tier 4 Final ☐ Spark Ignited ☐ Electric ☐ Other:	☐ No retrofits are proposed for the new engine ☐ Propose to install the following retrofit on the existing engine: ☐ Propose to install the following retrofit on the new engine: Manufacturer: _____ Model: _____ Verification Level: ☐ Level 1 ☐ Level 2 ☐ Level 3 Verified Emission Reductions: NOx: % PM: % ROG: %

Engine Manufacturer and Model:

EPA Engine Family:	Engine Year:
Engine Serial No: (if available)	Annual Fuel Usage: (Estimate)
Max Rated Brake HP:	Annual Hours of Operation: (Estimate)

Equipment Manufacturer and Model:

Equipment VIN No: (if available)	Equipment Model Year:

Months in Operation:

☐ Operates throughout the year

☐ January	☐ February	☐ March
☐ April	☐ May	☐ June
☐ July	☐ August	☐ September
☐ October	☐ November	☐ December

Cost of New Engine and/or Equipment : (Attach an estimate)	Cost to Retrofit: (Attach an estimate)

Describe the fuel source (i.e. location of fuel storage and dispensing system, battery recharging station, etc.):

Additional Information (May include documentation from the vendor regarding repower solutions or equipment limitations):

Form C – Instructions

New Engine Information
Verified Technology Retrofit Installation

1. **Complete a separate form for each new engine or equipment.**

2. **Describe the type of equipment the existing engine powers:** This may include a tractor, irrigation pump, forklift, electric generator, etc.

3. **Site Specific Location Description:** This may be more specific than what is reported on Form A as it should best describe the operation location of this existing engine or equipment.

4. **Primary Fuel Type:** Only select the primary fuel the engine consumes.

5. **Engine Type:** Select the type of existing engine. If not know, please consult your engine vendor.

6. **Verified Retrofit Technology:** Will retrofit technology be installed on the new or existing engine? If yes, include the manufacturer, model, ARB-Verification Level, and the associated emission reductions with the installed technology. Attach documentation, such as an ARB Executive Order. Your engine vendor should be able to assist you with gathering this information.

7. **Engine Manufacturer and Model No:** The make and model number of the new engine. For example, Cummins (make) 6BTA5.9C (model).

8. **EPA Engine Family (if available):** Include the certified engine family name assigned by the US-EPA. This information should be available through your engine vendor.

9. **Engine Year:** The year the engine model was manufactured.

10. **Engine Serial No.:** if available, include the serial number listed on the engine block or ID label.

11. **Max Rated HP**: Identify the new engine rated horsepower.

12. **Annual Fuel Usage:** Estimate that annual fuel usage, in gallons, by engine.

13. **Annual Hours of Operation:** Estimate the engine's annual operations in hours.

14. **Equipment Manufacturer and Model:** The make and model number of the equipment. For example, a Case (make) 721 (model).

15. **Equipment VIN:** The equipment Vehicle Identification Number, if available.

16. **Equipment Model Year:** The model year in which the equipment was manufactured.

17. **Months in Operation:** Select whether the engine will operate throughout the year or by month.

18. **Cost of New Engine and/or Equipment:** Attach an invoice that clearly itemizes the costs.

19. **Cost to Retrofit**: Attach an estimate from the vendor and/or mechanic the clearly itemizes the costs to retrofit the engine.

20. **Describe the fuel source:** How will fuel be supplied to the new equipment.

21. **Additional Information**: Include any information pertinent to this engine or equipment, including: engine-repower solutions or equipment limitations from the vendor or manufacturer, applicable permits or documentation issued by a local air district, and applicable ARB Executive Orders.

Environmental Quality Incentives Program (EQIP)
CALIFORNIA SUPPLEMENTAL APPLICATION FORM

2009

Air Quality - Combustion System Air Emissions Management
(Form D)

Agricultural Producer:

Vendor Information

Vendor Company Name:			
Contact Name and Title:			
Mailing Address:			
City:		State:	Zip Code:
Phone:	Fax No:	Email:	
Will provide the following services:			

Installer Information

Installation Company Name:			
Contact Name and Title:			
Mailing Address:			
City:		State:	Zip Code:
Phone:	Fax No:	Email:	
Will provide the following services:			

Other Involved Parties

DBA Name:			
Contact Name and Title:			
Mailing Address:			
City:		State:	Zip Code:
Phone:	Fax No:	Email:	
Will provide the following services:			

Form D – Instructions

Vendor, Installer, and Other Involved Parties

1. **Vendor Company Name:** Name of the company providing the new equipment.
2. **Contact Name and Title:** The first and last name and title of the person that will serve as the primary Vendor contact.
3. **Mailing Address:** The mailing address used by the Vendor, including City, State, and Zip Code.
4. **Phone Number:** The main phone number, including area code, for the Vendor contact.
5. **Fax Number:** The main fax number, including area code, for the Vendor contact.
6. **Email:** The email address of the Vendor contact.
7. **Will provide the following services:** Please describe the type of services the Vendor will provide.
8. **Installation Company Name:** Name of the company installing the new engine, equipment, or verified retrofit technology.
9. **Contact Name and Title:** The first and last name and title of the person that will serve as the primary Installer contact.
10. **Mailing Address:** The mailing address used by the Installer, including City, State, and Zip Code.
11. **Phone Number:** The main phone number, including area code, for the Installer contact.
12. **Fax Number:** The main fax number, including area code, for the Installer contact.
13. **Email:** The email address of the Installer contact.
14. **Will provide the following services:** Please describe the type of services the Installer will provide.
15. **Other Involved Parties Business Name:** Name of the company or individuals involved with this project and not previously identified.
16. **Contact Name and Title:** The first and last name and title of the person that will serve as the primary contact for any additional services.
17. **Mailing Address:** The mailing address used by the company, including City, State, and Zip Code.
18. **Phone Number:** The main phone number, including area code, for this contact.
19. **Fax Number:** The main fax number, including area code, for this contact.
20. **Email:** The email address for this contact.
21. **Will provide the following services:** Please describe the type of services this contact will provide.

Combustion Systems Air Emissions Management (Code 723)

Section 4
Emission Factors for Agricultural Engines

Table 1
Uncontrolled Off-Road Diesel Engines
Emission Factors (g/bhp-hr)

Horsepower	Model Year	NOx	ROG	PM10
50 – 119	Pre 1988	12.09	1.73	0.547
	1988 – 1995	8.14	1.19	0.497
120 +	Pre 1970	13.02	1.59	0.554
	1970 – 1979	11.19	1.20	0.396
	1980 – 1987	10.23	1.06	0.396
	1988 – 1995	7.60	0.82	0.274

Source: 2008 Carl Moyer Program Guidelines, Table B-12

Table 2
Controlled Off-Road Diesel Engines
Emission Factors (g/bhp-hr)

Tier	Horsepower	NOx	ROG	PM10
1	50 - 119	6.54	1.19	0.552
	120 - 174	6.54	0.82	0.274
	175 +	5.93	0.38	0.108
2	50 - 119	4.75	0.23	0.192
	120 - 174	4.17	0.19	0.128
	175 - 250	4.15	0.12	0.088
	251 +	3.79	0.12	0.088
3	50 - 120	2.74	0.12	0.160
	121 - 750	2.32	0.12	0.112
4 Interim	50 - 120	2.40	0.11	0.056
	121 - 174	2.15	0.11	0.008
	175 - 750	1.29	0.08	0.008
	>750	2.24	0.12	0.048
4 Final	50 - 120	1.33	0.08	0.008
	121 – 750	0.26	0.06	0.008
	>750	2.24	0.06	0.016

Source: 2008 Carl Moyer Program Guidelines, Table B-13

Table 3
Diesel Agricultural Equipment Default Load Factors

Tillers	0.78	Balers	0.53
Combines	0.70	Sprayers	0.50
Tractors	0.70	Hydro Power Units	0.48
Irrigation Pumps	0.65	Mowers	0.43
Loaders/Backhoes	0.55	Forklifts	0.30
Swathers	0.55	Other Agricultural	0.51

Source: 2008 Carl Moyer Program Guidelines, Table B-11

Table 4
Off-Road Large Spark Ignited Engines
Emission Factors (g/bhp-hr)

Horsepower	Fuel	Model Year	NOx	ROG	PM10
50-120	Gasoline	Uncontrolled – Pre 2004	11.84	2.66	0.060
		Controlled 2001-2006	1.78	0.26	0.060
		Controlled 2007-2009	1.19	0.18	0.060
		Controlled 2010+	0.36	0.05	0.060
	Alt Fuel	Uncontrolled – Pre 2004	10.51	1.02	0.060
		Controlled 2001-2006	1.58	0.11	0.060
		Controlled 2007-2009	1.05	0.07	0.060
		Controlled 2010+	0.32	0.02	0.060
>120	Gasoline	Uncontrolled – Pre 2004	12.94	1.63	0.060
		Controlled 2001-2006	1.94	0.16	0.060
		Controlled 2007-2009	1.29	0.11	0.060
		Controlled 2010+	0.39	0.03	0.060
	Alt Fuel	Uncontrolled – Pre 2004	10.51	0.90	0.060
		Controlled 2001-2006	1.58	0.09	0.060
		Controlled 2007-2009	1.05	0.06	0.060
		Controlled 2010+	0.32	0.02	0.060

Source: 2008 Carl Moyer Program Guidelines, Table B-15

Table 5
Off-Road Large Spark Ignited Equipment Default Load Factors

Combines	0.74	Sprayers	0.50
Tractors	0.62	Loaders/Backhoes	0.48
Balers	0.55	Forklifts	0.30
Swathers	0.52	Other Agricultural	0.55

Source: 2008 Carl Moyer Program Guidelines, Table B-14

Emissions Calculation Formulas

Lbs/hr = (EF g/bhp-hr) x (engine max rated bhp) x (load factor) x (1 lb/456 grams)
Tons/year = (Lbs/hr) x (annual hours of operation) x (1 ton / 2,000 pounds)

Conservation Tillage Residue Management

Residue and Tillage Management, No-Till, Strip Till (Code 329)

Residue and Tillage Management, Mulch Till (Code 345)

The adoption of on-field conservation tillage practices that increase the amount of crop residue left on the soil surface and/or reduce the number of tillage operations used to raise the crop. Emission reductions are associated with reducing soil disturbances and leaving crop residue on the soil surface, thus emitting less particulate emissions. Conservation tillage also has an added benefit of reducing the number of vehicle trips, which results in less fuel consumption and reduced emissions from combustion equipment.

All annually tilled row crops are eligible for payments. Participants are encouraged to disturb less than 100 percent of the soil surface and leave more crop residue on the soil surface.

Payment Schedule

Practice	NRCS Payment
No-Till	$25.44 / Acre
Mulch Till	$30.57 / Acre
Strip Till	$31.09 / Acre

Land Preparation Emission Factors

Category	Prep Operation	Lbs PM10/Acre-pass
Root Cutting	Root Cutting	0.3
Weeding	List	0.8
	List & Fertilize	
	Listing	
	Roll	
	Spring Tooth	
	Bed Preparation	
	Seed Bed Preparation	
	Shape Beds	
	Shape Beds & Roll	
	Shaping	
	Terrace	
Disking, Tilling, Chiseling	Chisel	1.2
	Plow	
	Mulch Beds	
	Disk	
	Disk & Furrow-out	
	Disk & Roll	
	Finish Disk	
	Harrow Disk	
	Post Burn/Harvest Disk	
	Stubble Disk	
	Unspecified Operation	
	General Land Prep	
Ripping, Subsoiling	Subsoil	4.6
	Subsoil-deep chisel	
Land Planing & Floating	Float	12.5
	3 Wheel Plane	
	Land Plane	
	Laser Level	
	Level	
	Level (new vineyards)	
	Plane	

Detailed Documentation for Fugitive Dust and Ammonia
Emission Inventory Changes for the SJVUAPCD Particulate Matter SIP
(California Air Resources Board, April 2003)

Percent Soil Surface Tilled for Select Tillage Types

Tillage Type	Percent
Minimum Tillage	100%
Strip Till	20% - 25%
No Till	5%

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California Extension Service
Kerney Agricultural Field Station
February 19, 2003

Dust Control on Unpaved Farm Roads and Equipment Yards (Code 729)

Fugitive dust generated from unpaved roads and traffic areas can become significant sources of particulate matter emissions (PM10 and PM2.5). The best practice for limiting fugitive dust is to stabilize the unpaved surface by treating with a dust palliative. Many dust palliatives are effective with limiting fugitive dust, including the application of water, road salts, lignin-based products, and emulsifiers. However, the dust control technology eligible for payments is the single application of SC 250 heavy road oil or equivalent product. This practice will result in at least 50% control of PM10 emissions from treated surfaces for up to two years after application. More permanent treatments will achieve this control efficiency over a five year period.

Certain eligibility conditions apply:

- A one-time application of SC 250. Use SC 800 on alkali soils.
- The unpaved surface should be graded, removing any potholes and imperfections. If possible, incorporate a crown.
- Roadbed should be moistened to facilitate oil penetration.
- Restrict traffic on the surface until the oil has cured. A light coating of sand may be applied if shiny spots remain after seven to ten days after application.
- Application rate is 3,000 gallons per mile based on a 10-foot wide swath.

A more permanent treatment design must be pre-approved by the NRCS. In addition to the above conditions the following minimum conditions apply for multi-year projects:

- A one-time application of SB 250. Use SC 800 on alkali soils.
- Install at least a 2 inch road base. The accepted base materials include ground asphalt, or standard road base or crushed granite meeting Class II ¾ inch standards.
- The treated surface must be maintained. Potholes, ruts, implement damage or other destabilizing abrasions must be corrected. Dust deposited on roads from agricultural traffic, implements, and wind must be periodically removed from the surface. The road must remain reasonably free of mud and dirt track-out and carry-out. The road must be otherwise maintained in travelable condition.

Payment Schedule

Practice	NRCS Payment
Single Application	$0.85 / linear foot
More Permanent Treatment	$1.50 / linear foot

Pest Management
(Code 595)

Where properly implemented, Integrated Pest Management (IPM) systems can result in substantially lower use of pesticides capable of impacting resource concerns such as air quality, water quality, and human health. These comprehensive pest management systems are used to manage pest populations at or below economically tolerable levels using many tactics, such as encouraging beneficial insects, researched and scientifically designed monitoring systems, improved understanding of pest lifecycles that provide a basis for alternative lower risk control measures, integration of low impact chemicals to reduce pest populations, pheromones to disrupt mating, among others.

To meet air quality objectives, producers must reduce the use of high VOC containing materials as designated by California Department of Pesticide Regulation. In addition, producers will be required to follow IPM programs prepared by the University of California Integrated Pest Management Program (UC IPM) as described on the UC IPM website (http://www.ipm.ucdavis.edu).

The Year Round Level 1 practice is for producers growing crops with published Year Round IPM programs available on the UC IPM website. These programs, as modified in consultation with local UCCE IPM experts to fit local conditions, must be implemented in their entirety by the producer.

- The Reduced VOC Level 1 practice requires the producer to implement an entire IPM program for one major insect pest as described in the appropriate Pest Management Guideline found on the UCIPM website and to reduce the number of high VOC emitting materials on the field. From the baseline established in Pesticide Use Reports submitted with the application, the participant must reduce one application for a payment in year one, reduce two applications in year two, and reduce three applications in year three.

- The Reduced VOC Level 2 practice requires following the Level 1 practice and adding a pre-authorized high cost IPM practice found in the UCIPM Pest Management Guidelines for the crop and pest of concern.

- The UC IPM Year-Round Program with reduced VOC-Level 1 requires the participant to follow the year round IPM program for a specified crop and to reduce the application of high VOC emitting materials as described above.

- The UC IPM Year-Round Program with reduced VOC-Level 2 requires the same practices as Level 1 with a pre-authorized high cost IPM practice found in the UC IPM Pest Management Guidelines for the crop and pest of concern.

Detailed instructions for field implementation are available.

Payment Schedule

Integrated Pest Management	
Practice	**NRCS Payment**
Reduced VOC Level 1	$24.75 / Acre
Reduced VOC Level 2	$78.38 / Acre
Year Round Program (Level 1)	$49.50 / Acre
Year Round Program (Level 2)	$103.13 / Acre

Precision Pest Control Application (Code 718)

The California Department of Pesticide Regulation (DPR) has targeted a minimum of 20 percent reduction in volatile organic compound (VOC) emissions from agricultural pesticide usage by year 2010. To reduce VOC emissions from agricultural pesticide usage, assistance is available to agricultural producers who plan to adopt new precision pesticide spray application technologies that address site specific management of variable pest populations.

Eligible technologies have peer-reviewed research documentation of the VOC reducing capabilities of the technology. Priority is given to optical sensor sprayers and Sonar sensing technology products documented with providing at least a 20 percent reduction in VOC emissions (excludes mechanical tillage equipment).

To be eligible, the following documentation is required:

- Pesticide use reports on enrolled acres for the previous two years.
- Current equipment being used (i.e. photographs, invoices for services provided, and signed statement of usage)
- Long term commitment to equipment usage.

Ineligible projects include: non-ID targeting applicators, spray nozzle technologies, electro-static spray technologies, open flame desiccation, other non-smart sprayer technologies, or precision spray technologies already being utilized on the property.

Another eligible precision treatment applies to fields treated with soil fumigants and post water applications to limit VOC emissions. Sprinklers are used to apply three water applications of at least 0.2 inches each at specified times after fumigation is completed according to DPR regulations. Two payment schedules apply to this practice:

(1) Use sprinklers for stand establishment and/or seasonal irrigations (with in-season sprinkler use).
(2) Fields irrigated with sprinklers for no other reason than to manage VOC emissions (without in-season sprinkler use).

Payment Schedule

Practice	NRCS Payment
Precision Spray	$30.00 / Acre
Water treatment (with in-season sprinkler use)	$20.00 / Acre
Water treatment (without in-season sprinkler use)	$125.00 / Acre

Treated Wooden Stake Disposal

Obstruction Removal (Code 500)

This program is designed to assist agricultural producers with the proper disposal of chemically treated wooden stakes. This wood is typically treated with preserving chemicals that protect the wood from insect attack and fungal decay during its use. These chemicals can pose a risk to human health and the environment. Chemicals added to preserve wood and known to be toxic or carcinogenic include arsenic, chromium, copper, creosote, and pentachlorophenol. Harmful exposure may be by direct contact with the skin or by inhalation or ingestion of the particulate through smoke from open burning or sawdust from cutting or chipping the wood.

The majority of chemically treated wood stakes used in agriculture are treated with Chromium Copper Arsenate (CCA). As a result, all CCA-treated wood products used as support structures for crops are eligible for payments, regardless of crop type. The priority is given to existing piles of stakes and to agricultural producers that have switched to other materials for support systems. With limited resources available, the intent is to remove the threat of accidental combustion and reduce the potential damage to underground and surface waterways.

Payments are available one-time per location and consider the loading, transportation, and proper disposal of CCA-treated stakes. Payments are on a per acre basis, equating to 1.5 tons of stakes per acre, up to 310 tons of stakes.

The California Department of Toxic Substance Control (DTSC) requires that chemically treated wood be disposed of in an approved landfill. In addition, any agricultural producer generating more than 10,000 pounds of chemically treated wood in a calendar year must obtain an identification number and notify the DTSC within 30 days of exceeding this limit. More information on storage, transportation, and disposal of chemically treated wood is posted on the DTSC website at http://www.dtsc.ca.gov/HazardousWaste/Treated_Wood_Waste.cfm.

Landfills that accept CCA-treated wood can be found at http://www.dtsc.ca.gov/HazardousWaste/upload/TWW_Confirmed_Landfill_List.pdf.

Payment Schedule

Practice	NRCS Payment
CCA-treated wood	$125.00 / Acre

Manure Injection

Waste Utilization (Code 633)

Current research has identified dairies as a source of volatile organic compounds (VOC) emissions, an ozone precursor. A source of VOC emissions is from the land application of dairy manure onto the soil surface. Through effective land application of manure by injection into the soil, substantial reductions of VOC emissions can be achieved. Assistance is available for reducing VOC emissions by implementing the practice of injecting manure directly into the soil provided this practice is coordinated under a nutrient management plan.

To be eligible, the following conditions must be met:

- Complete soil tests reporting the residual nitrogen, phosphorous, and potassium salt levels
- Crop yield goals
- Manure nutrient tests
- Appropriate application rates and timing of manure to match crop needs
- Accounting of nutrient supply from all sources
- Direct injection of manure into the soil

Payment assistance is not available for nutrient management practices already being performed on a dairy, including irrigation water run of manure with or without incorporation, broadcast manure on the soil surface with incorporation by disking, injection manure without preparation, or following the conditions specified in a nutrient management plan.

Payment Schedule

Practice	NRCS Payment	Maximum
One Application	$30.00 / Acre	$15,000
Two-Split Fall/Spring Application	$50.00 / Acre	$25,000

Windbreak/Shelterbelt Establishment around Confined Animal Facilities

Windbreak/Shelterbelt Establishment (Code 380)

Research has indicated that confined animal facilities (CAF) are sources of PM10 and volatile organic compounds (VOC) emissions created through animal production activities and the waste they generate. Emission reductions are achieved as windbreaks can reduce emissions into the atmosphere by intercepting the particulate matter and containing them within the trees. Established windbreaks can obtain 22.5% PM10 control efficiency. As an added benefit, odors leaving a CAF are reduced in areas downwind if a windbreak has been established.

Participants may achieve PM10 emission reductions when establishing a windbreak/shelterbelt around the CAF. To be eligible for payments, participants must establish a one, two, or three or more row windbreak. An irrigation system properly designed must be installed for new windbreak plantings according to NRCS Conservation Practice Standard 441 (Irrigation System, Microirrigation) or 442 (Irrigation System, Sprinklers).

Payment Schedule

Practice	NRCS Payment
One-row Windbreak	$1.26 / linear foot
Two-row Windbreak	$2.52 / linear foot
Three or more row Windbreak	$3.78 / linear foot
Irrigation System	$400.00 / acre