The Califrina Air Resources Board developed crop calendars in 2003 in consultation with SJV AB ag producers.
In 2012, the SV AB rice tilling calendar was updated to better reflect patterns in the SV AB which grows 97%
of CA rice. Based on documentation from Butte County AQMD, the EF for three-wheel plane,
which is exclusive to rice tilling, was reduced from 12.5 lbs PM10/acre-pass to 1.1 lbs PM10/acre-pass.
The SV AB rice tilling EF was reduced from 20.0 to 6.32 lbs PM10/acre and the temporal profile was updated.
These changes were effective for SV AB's 2005 base year inventory developed for the 2008 PM2.5 SIP.
In April 2016, SV AB's reduced rice tilling EF and associated temporal profile were adopted statewide
for the 2016 Ozone SIP Inventory, V.1.04.
See the "Rice_Revised" tab for more detail.

Prepared by Janet Spencer, Sept. 2012
Updated by Janet Spencer June 2016

ALFALFA (HAY)

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
	0.25	5	1.0												
Planting															
	0.25	1	1.0												
Cultivation															
Harvesting															
	7	3	1.0												
Postharvest															

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

ALMONDS/WALNUTS

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Float	0.5	1	0.5												
Planting															
Cultivation															
Prune & Branch															
Disposal	1	1	0.5												
Mow/herbicide	1	1	0.5												
Harvesting															
	1	4	1												
Postharvest															

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

CITRUS

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
	0.02	3	1.0												
Planting															
	0.02	1	0.01												
Cultivation															
	1	1	0.1												
Harvesting (N/A)															
handpick															
Postharvest															

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

FIELD CORN

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Stubble Disc	1	1	1.0											■	■
Finish Disc	1	1	1.0	■											
List & Fertilize	1	1	1.0			■									
Mulch Beds	1	1	1.0			■									
Planting															
	1	1	1.0			■	■								
Cultivation															
	1	2	1.0				■	■							
Harvesting															
	1	1	1.0									■	■		
Postharvest															

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

COTTON

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Land Preparation	1	4	1.0												
Seed Bed Preparation	1	2	1.0												
Planting															
	1	1	1.0												
Growing Season															
Operation	1	3	1.0												
Harvesting															
	1	1	1.0												
Postharvest															
Shredding	1	1	1.0												

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

Table 3
Cotton Production PM10 Emissions

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	PM10 EF (lbs/opn)	PM10 per Year	Emissions During Month (4)											
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation																	
Land Preparation	1	4	1.0	4.04	16.16											8.08	8.08
Seed Bed Preparation	1	2	1.0	4.04	8.08		4.04	4.04									
Planting																	
	1	1	1.0					0	0								
Growing Season																	
Operation	1	3	1.0														
Harvesting																	
UCD Emission Factor (EF)	1	1	1.0	0.42	0.42										0.21	0.21	
Postharvest																	
Shredding (UCD EF)	1	1	1.0	0.7	0.7											0.35	0.35

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	*Annual*
Total PM10 Emissions	25.36	0	2.02	3.03	0	0	0	0	0	0	0.21	8.64	6.3225	***20.2225***
Windblown (Merced Cotton)		0.09	0.07	0.16	7.49	2.19	0.48	0.31	0.22	0.18	0.47	0.81	0.13	***12.60***
Windblown (Colusa Corn, adj.)		0.05	0.04	0.09	4.44	1.30	0.28	0.19	0.13	0.10	0.28	0.48	0.08	***7.46***
Unadjusted Corn Windblown		0.01	0.02	0.05	0.71	1.26	3.17	1.14	0.26	0.40	0.39	0.03	0.02	***7.46***
Grand Total (w/Corn wind adj.)		0.05	2.06	3.12	4.44	1.30	0.28	0.19	0.13	0.10	0.49	9.12	6.40	***27.68***

Merced Seasonal Cotton Wind	0.01	0.01	0.01	0.59	0.17	0.04	0.02	0.02	0.01	0.04	0.06	0.01	***1.00***
Corn Wind w/ Cotton Seasonal	0.05	0.04	0.09	4.44	1.30	0.28	0.19	0.13	0.10	0.28	0.48	0.08	***7.46***

Seasonal Wind Adjustment Note:
The windblown dust profile for corn grown in Colusa county was used to estimate the magnitude of PM10 windblown dust emissions for cotton. Because cotton was not grown in the Sacramento Valley (as of 1993) the PM10 emissions magnitude was not directly computed. However, because cotton is planted on a different schedule as corn, the windblown dust temporal profile for corn was modified by applying the profile used for cotton production in Merced county. This produces the Windblown (Colusa Corn, adj.) profile shown in the final emissions estimate. Merced county was selected as the adjustment county because it is the northernmost county in the SJV where cotton is grown.

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

(4) Soil preparation emissions are adjusted to account for soil moisture. Dec & Mar reduced 25%. Jan & Feb reduced 50%.

DRY BEANS (OTHER)(60% of total dry beans)

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Disc	1	2	1												
Chisel	1	1	1												
Listing	1	1	1												
Shaping	1	1	1												
Planting															
Plant	1	1	1												
Cultivation															
Cultivate	1	2	1												
Harvesting															
Cut Beans	1	1	1												
Windrow	1	1	1												
Harvest	1	1	1												

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

DRY BEANS (GARBANZOS)(40% of total dry beans)

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Disc	1	2	1												
Chisel	1	1	1												
Listing	1	1	1												
Shaping	1	1	1												
Planting															
Plant	1	1	1												
Cultivation															
Cultivate	1	1	1												
Harvesting															
Harvest	1	1	1												

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

GARLIC

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Disc & Roll	1	1	1												
Chisel	1	1	1												
List	1	1	1												
Shape Beds	1	1	1												
Planting															
Plant	1	1	1												
Cultivation															
Cultivate	1	1	1												
Harvesting*															
Top	1	1	1												
Dig	1	1	1												
Pickup	1	1	1												

*15% of garlic has only one pass

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

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GRAPES - RAISINS

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month												Acre Passes
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Land Preparation																
Subsoil	0.2	1	0.25										1			0.05
Disc & Furrow-out	1	4	0.25					1	1	1	1	1	1			1
Level (new vineyard)	0.017	1	1					1	1	1	1	1	1			0.017
Sulfur Dusting	1	8	0.5				1									
Spring Tooth	1	1	0.2				1	1	1							0.2
Terrace	1	2	0.5								1					1
											1	1	1			
																Total
Planting																2.27
Planting	1	1	0.01			1										
Tractor Work	1	1	0.01		1											
Cultivation																
French Plow	1	1	0.2													
Spray-Weed	1	1	0.9													
Spray-Pest	1	3	0.9													
Cutcane	1	1	0.4													
Fertilize	1	1	0.8			1										
Harvesting																
Machine Harvest	1	1	0.01											1		
Trailer Activity	1	1	0.25											1		
Postharvest																
Brush Disposal				1												

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

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GRAPES - TABLE

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month												Acre Passes
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Land Preparation																
Subsoil	0.2	1	0.25										■			0.05
Disc & Furrow-out	1	2	0.25				■							■		0.5
Sulfur Dusting	1	2	0.5				■	■	■							
																Total
Planting																0.55
Planting	1	1	0.01			■										
Tractor Work	1	1	0.01		■											
Cultivation																
French Plow	1	1	0.2													
Spray-Weed	1	1	0.9													
Spray-Pest	1	3	0.9													
Cutcane	1	1	0.4													
Fertilize	1	1	0.8			■										
Harvesting																
Machine Harvest	1	1	0.01											■		
Trailer Activity	1	1	0.25											■		
Postharvest																
Brush Disposal				■												

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

GRAPES - WINE

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month												Acre Passes
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Land Preparation																
Subsoil	0.2	1	0.25										■			0.05
Disc & Furrow-out	1	3	0.25					■	■	■	■	■	■			0.75
Level (new vineyard)	0.017	1	1					■	■	■	■	■	■			0.017
Sulfur Dusting	1	8	0.5				■									
Spring Tooth	1	1	0.2				■	■	■							0.2
											■					
											■	■	■			
																Total
Planting																**1.02**
Planting	1	1	0.01			■										
Tractor Work	1	1	0.01		■											
Cultivation																
French Plow	1	1	0.2													
Spray-Weed	1	1	0.9													
Spray-Pest	1	3	0.9													
Cutcane	1	1	0.4													
Fertilize	1	1	0.8			■										
Harvesting																
Machine Harvest	1	1	0.01											■		
Trailer Activity	1	1	0.25											■		
Postharvest																
Brush Disposal				■												

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

LAND MAINTENANCE

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Land Plane	0.25	1	1.0												
Planting															
Cultivation															
Harvesting															
Postharvest															

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

LETTUCE (2 crops per year; 50% new ground, 50% same ground)

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Disc & Roll	2	1	1												
Chisel	2	1	1												
List	2	1	1												
Plane	2	0.5	1												
Shape Beds & Roll	2	1	1												
Planting															
Plant	2	1	1												
Cultivation															
Cultivate	2	2	1												
Harvesting															
Harvest-Hand	2	0	1												

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(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

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MELONS

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Plow	1	1	1												
Disc	1	1	1												
Shape Beds	1	1	1												
Planting															
Plant	1	1	1												
Cultivation															
Cultivate	1	2	1												
Harvesting															
Harvest	--	0	--												

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(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

ONIONS

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Disc & Roll	1	1	1												
Chisel	1	1	1												
Level	1	1	1												
Shape Beds	1	1	1												
List	1	1	1												
Planting															
Plant	1	1	1												
Cultivation															
Cultivate	--	0	--												
Harvesting*															
Top	1	1	1												
Undercut	1	1	1												
Windrow	1	1	1												

*20% of onions only have two passes

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

Revised Rice Crop Calendar and Temporal Profile

David Lusk, of Butte County AQMD provided documentation of wetter soil conditions and later spring operations for rice land preparation operations
in the Sacramento Valley, where 97% of CA rice is grown, compared to SJV conditions and timing of rice tilling operations.
In September 2012, ARB reduced the SV AB EF for the three-wheel plane from 12.5 lb PM10/acre pass to 1.1 lb PM10/acre pass.
This change also applied to the Land Maintenance EF for rice as the three wheel plane is used exclusively for this operation.
This change reduced the overall SV AB rice land preparation emission factor from 20 lbs PM10/acre to 6.32 lbs/acre
The revised rice land preparation emission factor and associated temporal proifle were incorporated in SV AB's 2005 base year inventory for the 2008 PM2.5 SIP.
In April 2016, the reduced rice tilling EF and revised temporal profile were adopted statewide for the 2016 Ozone SIP Inventory, V.1.04.

More information on the development of the reivsed rice tilling emisison factor is available here:
https://www.arb.ca.gov/ei/areasrc/fullpdf/ricetilling.pdf

NOTES:
ARB's approach to allocating annual land preparation emissions distributes operation specific emissions proportionately to each month
in which they occur (e.g., 2 months = 50% each; 4 months = 25% each). David Lusk's approach allocated
unequal fractions of operation specific emissions to the months in which they took place: e.g., the 3 wheel plane emissions
are distributed 14% to April and 86% to May. Thus, ARB could not adopt the proposed SV AB temporal profile shown in Table 1,
as it presumes unequal monthly fractions for post burn/harvest disc, 3 wheel plane and rolling operations.
ARB adopted the temporal profile shown in Table 2 which distributes equal fractions of operation specific emissions to the months in which they occur.

Table 1. David Lusk's Proposed Temporal Profile for Rice Land Prep Emissions, Fractional PM10/month (Butte County AQMD)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Temporal Profile provided by David Lusk 5/25/2012	0.000	0.000	0.030	0.100	0.800	0.040	0.000	0.000	0.000	0.010	0.010	0.010

PM10/acre pass)

Operation		**EF**												
Post Burn/Harvest Disc	Discing	0.6			0.18	0.24						0.06	0.06	0.06
Land Maintenance	Land Planing	0.22				0.22								
3 Wheel Plane	Land Planing	1.1				0.15	0.95							
Chisel	Discing	1.2					1.20							
Stubble Disc	Discing	1.2					1.20							
Harrow Disc	Discing	1.2					1.20							
Roll	Weeding	0.8					0.55	0.25						
		6.32												**Totals**
Total Land Prep EF per month			0.00	0.00	0.18	0.61	5.10	0.25	0.00	0.00	0.00	0.06	0.06	0.06	**6.32**	**Total of monthly EFs**
% of annual land prep activity (should match Row 11)			0.00	0.00	0.03	0.10	0.81	0.04	0.00	0.00	0.00	0.01	0.01	0.01	**1.00**	**Total of monthly %'s**

Table 2. Temporal Profile adopted by ARB for Rice Land Prep Emissions, Fractional PM10/month

Temporal Profile adopted by ARB for Rice Land Prep Emissions, Fractional PM10/month

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Temporal Profile adopted by ARB April 2016	0.00	0.00	0.02	0.14	0.72	0.06	0.00	0.00	0.00	0.02	0.02	0.02

PM10/acre pass)

Operation		**EF**												
Post Burn/Harvest Disc	Discing	0.6			0.12	0.12						0.12	0.12	0.12
Land Maintenance	Land Planing	0.22				0.22								
3 Wheel Plane	Land Planing	1.1				0.55	0.55							
Chisel	Discing	1.2					1.20							
Stubble Disc	Discing	1.2					1.20							
Harrow Disc	Discing	1.2					1.20							
Roll	Weeding	0.8					0.40	0.40						
		6.32												
Total Land Prep EF per month			0.00	0.00	0.12	0.89	4.55	0.40	0.00	0.00	0.00	0.12	0.12	0.12	**6.32**	**Total of monthly EFs**
% of annual land prep activity (should match Row 29)			0.00	0.00	0.02	0.14	0.72	0.06	0.00	0.00	0.00	0.02	0.02	0.02	**1.00**	**Total of monthly %'s**

RICE

This calendar was used statewide from 2003-2012. From 2012-2016, it was used for non-SV AB regions. In April 2016, the SV AB rice calendar (see "Rice_Revised" tab) replaced this calendar statewide.

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Chisel	1	1	1												
Stubble Disc	1	1	1												
Harrow Disc	1	1	1												
3 Wheel Plane	1	1	1												
Laser Level	0.33	1	1												
Roll	1	1	1												
Post Burn/Harvest Disc	1	1	0.5												
Planting															
Plant															
Cultivation															
Cultivate															
Harvesting*															
Combine	1	1	1												
Chop Straw	1	1	0.5												
Burning															

Modified 5/20/97 based on Jack Williams comments

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

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EMISSIONS

Table 2
Rice Production PM10 Emissions

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	PM10 EF (lbs/opn)	PM10 per Year	Emissions During Month (8)											
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation																	
Chisel	1	1	1	4.04	4.04			1.35	1.35	1.35							
Stubble Disc	1	1	1	4.04	4.04			1.35	1.35	1.35							
Harrow Disc	1	1	1	4.04	4.04				2.02	2.02							
3 Wheel Plane	1	1	1	4.04	4.04				2.02	2.02							
Laser Level	0.33	1	1	4.04	1.3332			0.44	0.44	0.44							
Roll	1	1	1	1	1				0.50	0.50							
Post Burn/Harvest Disc (4)	1	1	0.5	4.04	2.02										0.67	0.67	0.67
Planting																	
Plant																	
Cultivation																	
Cultivate																	
Harvesting (5)																	
Combine	1	1	1	0.21	0.21									0.07	0.07	0.07	
Chop Straw (6)	1	1	0.5	0.7	0.35									0.12	0.12	0.12	
Burning																	
(UCD Emission Factor)	1	1	1	20.8	20.8		2.97	2.97	2.97					2.97	2.97	2.97	2.97
Incorporation 2 Scenario																	
(chop 1x & disc 2x) (7)																	
	1	1	1	8.78	8.78									2.20	2.20	2.20	2.20

Total PM 10 Emissions	Annual (lbs PM10/acre)	Jan (H20 Adj)	Feb (H20 Adj)	Mar (H20 Adj)	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec (H20 Adj)	*Annual*	
- Burn Scenario	41.87	0.00	2.97	5.32	10.65	7.68	0.00	0.00	0.00	3.16	3.83	3.83	3.48	***40.92***	Rice (w/burn)
- Incorporation Scenario	29.85	0.00	0.00	2.35	7.68	7.68	0.00	0.00	0.00	2.38	3.06	3.06	1.54	***27.74***	Rice (w/incorp.)
Windblown (Colusa Rice)	3.69	0.03	0.05	0.12	1.36	1.12	0.11	0.10	0.08	0.10	0.50	0.06	0.04	***3.69***	
Grand Total (burn)	44.61	0.03	3.02	5.45	12.01	8.80	0.11	0.10	0.08	3.26	4.33	3.90	3.52	***44.61***	
Grand Total (incorporate)	31.43	0.03	0.05	2.48	9.03	8.80	0.11	0.10	0.08	2.49	3.56	3.12	1.57	***31.43***	

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(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

(4) Assume only 1/2 of acreage is disced after burning or harvest.

(5) For rice harvest emission factor, use 1/2 cotton picking emissions (assume higher moisture and less dusty).
Use cotton stalk cutting emission factor for cotton stalk incorporation from UCD.

(6) Assume only 1/2 acreage is chopped after harvest prior to burning or incorporation.

(7) The straw incorporation emissions include only a single scenario. There is significant variation in straw incorporation practices. The scenario presented is a moderate effort scenario. Some approaches requre more operations, some less.

(8) Soil preparation emissions are adjusted to account for soil moisture. Dec & Mar reduced 25%. Jan & Feb reduced 50%.

SAFFLOWER

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Stubble Disc	1	1	1												
List	1	1	1												
Planting															
Plant	1	1	1												
Cultivation															
Cultivate	--	0	--												
Harvesting															
Harvest	1	1	1												

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(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

SUGAR BEETS

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Stubble Disc	1	1	1												
Subsoil-deep chisel	1	1	1												
Land Plane	1	1	1												
Disc	1	1	1												
List	1	1	1												
Planting															
Plant	1	1	1												
Cultivation															
Cultivate	1	2	1												
Thinning	1	2	1												
Harvesting															
Top (Leaf Beating)	1	1	1												
Dig	1	1	1												

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(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

TOMATOES

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Land Preparation	1	5	1.0										■	■	■
Bed Preparation	1	2	1.0	■	■										
Planting															
	1	1	1	■	■	■									
Cultivation															
	1	2	1			■	■	■							
Harvesting															
Machine	1	1	1							■	■	■			
Postharvest															

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(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

WHEAT/BARLEY

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Stubble Disc	1	1	1												
Planting															
	1	1	1												
Cultivation															
Harvesting															
	1	1	1												
Postharvest															

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement necessary to accomplish a particular farming operation.

(3) Fraction acreage per cycle refers to the fraction of the acreage covered by the particular farming operation. For example, in an orchard or a vineyard, operations usually only disturb the ground between the rows. In those cases only 50% of the acreage is actually affected by the operation. In contrast, a discing operation usually affects 100% of the acreage.

Crop Name

Farming Operations	Crop Cycles Per Year(1)	Passes Per Crop Cycle(2)	Fraction Acreage Per Cycle(3)	Passes During Month											
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Land Preparation															
Planting															
Plant															
Cultivation															
Cultivate															
Harvesting*															

(1) Crop cycles per year refers to the number of times per year a particular farming operation is performed. A value less than one indicates an operation is performed less than once per year. Values greater than one indicate the operation is done more than once per year.

(2) Passes per crop cycle refers to the actual number of passes by a farm implement Necessary to accomplish a particular farming operation.

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