IRRIGATION AND NITROGEN MANAGEMENT PLAN (INMP) WORKSHEET

Member ID #: _____ **Member Name:** _____

Was this management unit identified as a statistical outlier by the Coalition last year?
☐ Yes ☐ No

Crop Year (Harvested): _____

PARCEL MANAGEMENT					
Management Unit (MU) or Field OPTIONAL	**APN**	**County**	**Crop**	**Crop Age** (Years)	**Irrigated Acres**
				Total Acres:	

Comments/Notes:

IRRIGATION AND NITROGEN MANAGEMENT PLAN (INMP) WORKSHEET

Member ID: _____ INMP Field or MU: _____ Crop: _____ Total Acres: _____

IRRIGATION MANAGEMENT

1. Irrigation Method*	Pre-Season Planning	
(check one for Primary; if applicable, check one for Secondary) Primary / Secondary[1] ☐ ☐ Drip ☐ ☐ Micro Sprinkler ☐ ☐ Furrow ☐ ☐ Sprinkler ☐ ☐ Border Strip ☐ ☐ Flood	2. Crop Evapotranspiration (ET, inches)	
	3. Anticipated Crop Irrigation (inches)	
	4. Irrigation Water N Concentration (ppm or mg/L, as NO_3-N)	

5. Irrigation Efficiency Practices* (Check all that apply)

- ☐ Laser Leveling
- ☐ Use of ET in scheduling irrigations
- ☐ Water application schedule to need
- ☐ Use of moisture probe (e.g. tensiometer)
- ☐ Soil Moisture Neutron Probe
- ☐ Pressure Bomb
- ☐ Other _____
- ☐ Other _____

HARVEST / YIELD INFORMATION

Harvest / Yield Information			Expected (A)	Actual (B)
6. Production Unit (lbs, tons, etc.)		**7. Harvested Yield***		

NITROGEN MANAGEMENT

8. Nitrogen Efficiency Practices* (Check all that apply)	Nitrogen Sources	Recommended/ Planned N (A)	Actual N (B)
☐ Split Fertilizer Applications ☐ Irrigation Water N Testing ☐ Soil Testing ☐ Tissue/Petiole Testing ☐ Fertigation ☐ Foliar N Application ☐ Cover Crops ☐ Variable Rate Applications using GPS ☐ Other: _____ ☐ Other: _____	9. Soil – Available N in Root Zone (Annualized, lbs/ac)		
	10. N in Irrigation Water* (Annualized, lbs/ac)		
	11. Organic Amendments* (Manure/Compost/Other, lbs/ac estimate)		
	12. Dry/Liquid Fertilizer N* (lbs/ac)		
	13. Foliar Fertilizer N* (lbs/ac)		
	14. TOTAL NITROGEN (lbs/ac)		

[1] A secondary irrigation system could be used for crop germination, frost protection, crop cooling, etc.

***(Bold Text)** Data to be reported to the Coalition on the INMP Summary Report, based on Actual Yield and Actual N.

Plan Certifier Initials _____

IRRIGATION AND NITROGEN MANAGEMENT PLAN (INMP) WORKSHEET INSTRUCTIONS

Complete an Irrigation and Nitrogen Management Plan (INMP) Worksheet for every field or management unit in your membership. All INMP Worksheets must be kept on farm for all fields/parcels and made available upon request during inspections by the Central Valley Regional Water Quality Control Board (Regional Board).

Each section heading below (all CAPS) corresponds to the section heading on the INMP Worksheet. The numbered references correspond to each numbered box on the INMP Worksheet.

IRRIGATION AND NITROGEN MANAGEMENT PLAN

Enter the membership identification number (**Member ID#**) issued by your water quality coalition and the **Member Name** associated with this membership.

Indicate if the field(s)/management unit you are writing the plan for was identified as a **Statistical Outlier** by the Coalition for the previous crop year. The Coalition conducts a statistical analysis on the data provided from members for the nitrogen applied and nitrogen removed (based on yield) to determine statistical outliers. The Coalition provides annual feedback to members on reported nitrogen use including if the field/management unit was identified as a statistical outlier. If the field/management unit was identified as a statistical outlier by the Coalition in the previous crop year, mark "Yes". Please contact your Coalition for more information about this notification and statistical outliers.

Enter the **Crop Year (Harvested)**. Information on INMP Worksheets should be based on the calendar year in which harvest was completed. This includes winter crops (i.e. winter cereal grains and some citrus crops such as navel oranges) for which fertilization may have occurred in the previous calendar year but harvest was completed in the following calendar year. Fertilization does not need to occur within the same calendar year to be considered a part of the current crop year.

PARCEL MANAGEMENT

Use this table to account for all parcels for which the plan applies. Multiple parcels, portions of parcels, or fields (not to exceed 640 acres) may be included in a single plan if they all have the same:

- Crop
- Fertilizer inputs
- Irrigation management
- Nitrogen management practices

Enter the **Assessor's Parcel Number (APN)** and **County** for each parcel associated with your plan.

Enter the **Crop** name (almonds, walnuts, table grapes, wine grapes, raisin grapes, watermelons, canning tomatoes, fresh market tomatoes, etc.). Check with your Coalition regarding specific crop naming conventions. If you have a permanent crop, enter the **Crop Age** (in years).

Enter the **Irrigated Acres** for each parcel or portion of parcel to which this plan applies.

Sum the irrigated acres from each parcel for the **Total Acres** covered under the plan.

Use the **Comment/Notes** box to provide any further information that may be pertinent to the worksheet (e.g. nitrogen use efficiency, nitrogen removal rates, reasons for substantial differences between plan and actual numbers, etc.).

IRRIGATION MANAGEMENT

***Items with an asterisk shall be submitted to the Coalition on the INMP Summary Report.**

Irrigation Method* (1). Check the box to indicate the irrigation method used the most for crop irrigation (primary irrigation) during the growing season for the field/management unit under this plan. If applicable, indicate any secondary irrigation systems. Secondary irrigation systems include those used for crop germination, frost protection, crop cooling, or salinity management.

Crop Evapotranspiration (2). Enter the potential crop evapotranspiration (ETc) in inches anticipated for the season. Evapotranspiration rates are provided by geographical location, and multiplied by a crop-specific coefficient to estimate the amount transpired by your crops. This information and additional resources may be available from your Coalition.

Anticipated Crop Irrigation (3). Enter the amount of irrigation water in inches expected to be applied over the course of the season. This information and additional resources may be available from your Coalition.

Irrigation Water N Concentration (4). Enter the concentration of nitrogen in the irrigation water used on your crop as parts per million (ppm) or milligrams per liter (mg/L). The concentration of nitrogen in your irrigation water can be obtained from sources such as local district testing, laboratory analysis, or other sources. These results can be reported as either Nitrate as N, nitrate-nitrogen, or NO3-N.

Irrigation Efficiency Practices* (5). Check all boxes that apply to indicate irrigation efficiency practices used on your fields during the season. Indicate if, to your knowledge, the parcels have been laser leveled.

HARVEST/YIELD INFORMATION

***Items with an asterisk will need to be submitted to the Coalition on the INMP Summary Report.**

Production Unit* (6). This is the standard unit that is the basis for your nitrogen management planning (tons, pounds, bins, cartons, bales, etc.); refer to your Coalition for specific production unit lists. If you use a production unit that is not pounds or tons, please provide the weight of the reported unit (i.e. “28 lb lug boxes” instead of “lug boxes”), as crops often have multiple possible harvest production units.

Harvested Yield* (7). This includes all crop yield harvested for the season. For pre-season planning, use **Box 7A** to fill in the Expected Yield for the season. The Expected Yield should be reported on a per-acre basis for the field or management unit covered by the plan. Expected Yield expectations will guide nitrogen management decisions and will inform the **TOTAL NITROGEN Recommended (14A)** to be used in the Nitrogen Management section below. If you grow grain crops and harvest straw separately, contact your Coalition.

NITROGEN MANAGEMENT

***Items with an asterisk will need to be submitted to the Coalition on the INMP Summary Report.**

Nitrogen Efficiency Practices* (8). Check all boxes that apply to indicate any nitrogen efficiency practices used on your fields during the season.

Recommended/Planned N (Column A): Complete the boxes in the Nitrogen Sources section in **Column A** based on the anticipated Nitrogen Sources required to obtain the Expected Yield from **Box 7A**. The values listed in **Column A** require certification. Use crop recommendations from CDFA, UCCE, NRCS, commodity organizations or site-specific knowledge to appropriately estimate the amount of nitrogen (N) necessary. Use Recommended/Planned N totals for each source of N and schedule applications for the crop year. Use additional tools/spreadsheets to plan timing for each application. Proper scheduling of N applications and irrigations is essential for efficient nitrogen management.

Recommended / Planned TOTAL NITROGEN (14A): All Nitrogen Sources in this section should be the total for **Recommended / Planned TOTAL NITROGEN (14A).**

Recommended / Planned TOTAL NITROGEN (14A) = 9A + 10A + 11A + 12A + 13A.

Complete the following sections based on the nitrogen source:

- **Soil – Available N in Root Zone (9A and 9B).** Represents nitrogen in the soil root zone that is available to the crop during the growing season. Enter the amount of residual soil nitrogen based on soil samples or other available data.
- **N in Irrigation Water (10A and 10B*).** Enter the amount of nitrogen applied via irrigation water over the course of the crop year in pounds per acre. For planning (**10A**), this value is calculated based on the **Anticipated Crop Irrigation (3)** and the **Irrigation Water N Concentration (4)**. For the Actual N column (**10B**), this value is calculated based on the *actual* crop irrigation and irrigation water N concentration. To calculate N in irrigation water, use the following formula:

  N concentration (ppm or mg/L) x inches of irrigation applied x 0.226

  Nitrate as nitrogen is also referred to as Nitrate as N, nitrate-nitrogen, or NO3-N.

- **Organic Amendments (11A and 11B*).** Organic Amendments include any nutrient applications from sources that do not have a guaranteed nutrient content, such as compost and manure applications. Applied organic amendments should be reported as the amount of nitrogen available to the plant during the crop year, in pounds per acre.
- **Dry/Liquid Fertilizer N (12A and 12B*).** The Dry/Liquid Fertilizers include any nitrogen-containing product with a guaranteed nutrient content. This number should be reported as the amount of nitrogen applied as pounds per acre; this may be different than the amount of fertilizer applied which may include other nutrients.
- **Foliar Fertilizer N (13A and 13B*).** Foliar nitrogen applications include any nitrogen-containing product applied to the crop canopy or above ground plant parts, and should be reported in pounds per acre.

Actual N (Column B): Fill in the **Actual N (Column B)** based on actual applied nitrogen amounts. This should be completed after the crop is harvested for each of the nitrogen sources outlined above. **These values do not require certification.** Use the Recommended/Planned N schedule to guide nitrogen applications throughout the growing season. Actual application amounts and timing can be adjusted

based upon changing conditions (weather, pest damage, expected yield, tissue samples, etc.). The information in this column should reflect the actual application during the Crop Year. Refer to the Nitrogen Source section above for additional instructions and definitions.

Actual TOTAL NITROGEN (14B): Actual applied Nitrogen Sources should be the total for Actual **TOTAL NITROGEN (14B).**

Actual TOTAL NITROGEN (14B) = 9B + 10B + 11B + 12B + 13B.

INMP CERTIFICATION

Plans for parcels in a **High Vulnerability Area** (HVA) to groundwater must be certified. Please contact your Coalition for more information regarding the vulnerability to groundwater of your parcels. The person certifying the plan must complete the **INMP Certification** section including signature, date, and method of certification. Any plan certifier should also initial the INMP Worksheet page in the box in the bottom right corner.

Any INMP requiring certification must be certified by an Irrigation and Nitrogen Management Specialist, such as:

- Crop Advisers certified by the American Society of Agronomy (CCA). Any Certified Crop Adviser who certifies an INMP must also have completed the nitrogen management training program offered by the University of California Agriculture and Natural Resources (UCANR) and the California Department of Food and Agriculture (CDFA).
- Certified Professional Soil Scientists (CPSS)
- Certified Professional Agronomists (CPAg)
- Technical Service Providers (TSP) certified in nutrient management in California by the Natural Resources Conservation Service (NRCS)
- Certified Agricultural Irrigation Management Specialists (CAIS) certified by The Irrigation Association.

Additionally, plans may be self-certified by the Member if:

- The certifying Member has attended the California Department of Food and Agriculture (CDFA) or other approved training program for INMP certification. The Member must retain written documentation of their attendance in the training program.
- The certifying Member adheres to a site-specific recommendation from the Natural Resources Conservation Service (NRCS Nutrient Management Plan) or the University of California Cooperative Extension (UCCE). The Member must retain written documentation of the recommendation.

If you do not apply nitrogen fertilizer:

- You must state that you do not apply nitrogen fertilizer to the field on your INMP Worksheet.