

TEMPLATE FOR NITROGEN MANAGEMENT PLAN WORKSHEET AND SUMMARY REPORT

Narrative Description

The Nitrogen Management plan (NMP) worksheet template is a document intended as guidance for growers in developing the nitrogen fertilizer portion of an overall crop nutrient plan. Information on the worksheet should only be considered as basic components of the nitrogen portion of an overall crop nutrient program. The NMP worksheet template (or equivalent documents) will be prepared annually and kept on the farm. A NMP Summary Report will be submitted to the Coalition by the member based on the schedule in the WDR General Order.

The NMP worksheet template focuses on the nitrogen component of a whole crop nutrient plan that includes NPK and other nutrients. P and K, the two other major crop nutrient sources, do not impair beneficial uses of surface or groundwater in the Central Valley and their application is not included in this reporting. In high vulnerability areas, the worksheet must be signed off by a certified crop advisor or other approved party. In low vulnerability areas, the worksheet can be prepared by the grower and remains on the farm with no further reporting required.

For the Nutrient Management Plan Summary Report (NMP Summary Report), the member will utilize the NMP worksheet to calculate total nitrogen applied (input), amount of nitrogen needed to meet actual yield (need) and the balance of what is remaining (loss of nitrogen). The member reports the ratio of the amount of nitrogen applied over the amount of nitrogen the crop needs. Also in the NMP Summary Report is member identification, APN, crop and acreage in reporting unit.

If the Coalition determines that a ratio reported on a member summary report for a specific field or crop is an “outlier,” the Coalition or a representative will contact the member to better understand the fertilizer practices of the grower. The Coalition will work with the member to ensure that they have information regarding management practices specific to their crop and soil type. Members are responsible for implementing management practices that are protective of groundwater quality.

Nitrogen Management Plan Worksheet

Following is a description of the data fields and sources of information for each.

Crop Specific Information

Items 1-5 are also reported in the NMP Summary Report

1. Crop Year, Actual

- Year or season a crop is produced. For annual crops, the period of time from planting to harvest. For perennial crops, the crop year can be considered dormancy through post harvest (or other equivalent period). This is the period when the nitrogen applications are counted toward the ratio.

2. Member ID

- Coalition membership number

3. Crop Year, Recommended

- This is the year/crop that an approved party would be making the nitrogen application recommendation

4. APN

- Assessor Parcel Number (APN) for reporting unit of worksheet and summary

5. Field #

- Field(s) numbers in the reporting unit covered by the worksheet

Crop Nitrogen Demand (Crop Nitrogen Needs)

6. Crop

- Crop covered by the worksheet

7. Actual Yield (lbs of N per acre)

- The total yield of a field per acre based on harvested production in the reporting period (total yield can also include non marketable portion of crops such as hulls, shells, culls)

8. Crop N Needs to meet actual yield (lbs of N per acre)

- Amount of nitrogen needed in the crop year for "Actual Yield".

9. Projected Yield

- Yield estimate based on cropping history, grower experience or other relevant information

10. N Needs to Meet Projected Yield (lbs of N per acre)

- The amount of Nitrogen fertilizer in pounds per acre needed to meet the Projected Yield. This amount will be based on N crop need levels developed by commodity groups, UC, CDFA or fertilizer suppliers.

11. Total Acres

- Total acres that the worksheet data applies to.

Nitrogen Applications and Credits

Nitrogen Fertilizer (Conventional and Organic)

12. Dry and Liquid N

- Sources of nitrogen, either dry granules or liquid formulations calculated in pounds of N per acre

13. Foliar N fertilizers

- Nitrogen fertilizer applied through spray equipment in a liquid form to crop foliage or canopy

14. Other N fertilizers

- Other sources of N fertilizers not accounted in above two categories

15. Available Organic Material N (manure, compost)

- Available nitrogen contained in manure or compost applications, measured in pounds per acre

16. Total available N Applied

- Sum of available nitrogen applied per acre in the reporting area

Soil Nitrogen Credits (Estimated)

Available N carryover

17. N from previous legume crop

- Nitrogen available to the upcoming crop from previous plantings such as alfalfa or legume-containing cover crops. This may be estimated using lab analysis or guidelines from the UC or other reputable source for estimating N contributed.

18. Available N residual from manure/compost

- Estimate of N available from manure or compost applications in previous years and available for the upcoming crop. This may be estimated using lab analysis or guidelines from the UC or other reputable source for estimating N contributed.

19. N in irrigation water (annualized)

- Nitrogen measured in the irrigation source water and available for crop update based on total applied irrigation water throughout the growing season. The estimated N is total applied on a pounds per acre basis for the entire season.

20. Total N Credits

- Total of cells 17, 18, 19

21. Total Available N Applied and Credits

- Total of cells 16 and 20

22. Crop N Needs

- From cell 8 (Actual) or 10 (Recommended)

23. Balance

- Amount of N above or below the projected crop needs.

24. Ratio

- Amount of nitrogen supplied over the amount of nitrogen the crop needs.
- *Also reported in the NMP Summary Report*

SUMMARY REPORT OF NITROGEN MANAGEMENT PLAN

The Nitrogen Management Plan Summary Report will be filled out by members and submitted to the ESJWQC based on the time schedule provided within the WDR General Order. A Coalition will summarize the data to provide assurance to the Regional Board that members are managing nitrogen to protect groundwater quality while trend monitoring data are collected. The Summary Report Nitrogen Worksheets will include an evaluation of the data reported to the ESJWQC by township (36 square mile area).

Data Collected and Reported

Each member in a high vulnerability area will also fill out a Nitrogen Management Plan Summary Report (NMP Summary Report). The member will utilize the NMP worksheet which records information such as type of fertilizer applied to calculate total available nitrogen applied (input), amount of nitrogen needed to meet actual yield (need) and the balance of what is remaining (balance). The member reports the ratio of the amount of nitrogen supplied over the amount of nitrogen the crop needs.

Member Requirements

Members are required to submit the NMP Summary Report to the Coalition based on the schedule in the WDR General Order. The member will fill out this report based on the actual amount of nitrogen supplied which should be based on the recommendation described in the NMP worksheet filled out by a certified crop advisor or other approved party. If the Coalition determines that the ratio submitted by the member is an outlier, the member will meet with a Coalition representative to better understand the fertilizer and irrigation practices of the grower. The member will be responsible for implementing management practices that are protective of groundwater quality. The Coalition will work with the member to ensure that they have information regarding management practices specific to their crop and soil type.

Evaluation of Nitrogen Consumption Ratios

The NMP Summary Report is submitted to the Coalition and documents each member's crop, parcels, acreage and ratio (input/need). The Coalition uses the ratios to make comparisons of potential nitrogen loss by crops in similar soil conditions under similar practices.

Incorporating the Nitrogen Use Ratio (NUR) into the summary report allows a coalition or grower to better identify fields that have a high potential for future groundwater contamination. This indicator will also be useful in guiding the management plan effectiveness program because there will be both a record of the field's potential for leaching nitrogen into the groundwater as well as a way of tracking the progress of fields identified as having a higher potential for discharges to groundwater.

Reported ratios for similar crops will be graphed in box and whisker plots in the evaluation submitted to the Regional Board. The range of values within the box and whisker plot as well as the median value will be evaluated from year to year for specific crops. The box and whisker plots will allow the Coalition to evaluate ratios relative to crops managed under similar practices. The Coalition will gain additional understanding through Groundwater Trend Monitoring and Farm Evaluations.

Identification of Growers not Implementing Effective Practices

The Coalition will evaluate crop specific ratios and any outliers. This means that outliers may be higher or lower than the median values. The Coalition is interested in the specific management practices used by members that result in both types of outliers.

It is not assumed that an outlier is indicative of practices that are not protective of groundwater quality. There are several reasons why a ratio may be an outlier:

1. The information was not recorded correctly either on the survey (by the member) or into the database (by the Coalition)
2. There was a misunderstanding regarding what information is filled out in the cells of the associated nitrogen budget



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3. More (or less if the outlier is lower than the box) nitrogen is being applied than is assumed to be needed by the crop
4. Site-specific conditions require that the member apply more (or less) nitrogen than a majority of other members growing the same crop

Coalition Actions

When outliers are identified, the Coalition will take the following actions:

1. Review the submitted NMP Summary Report to ensure that data were recorded correctly;
2. Compare the outliers to published literature (if available) to determine if the ratio is within the expected range of ratios;
3. Review the member's Farm Evaluation Plan and practices implemented to protect groundwater quality;
4. If the reported ratio is correct and still considered an outlier, the Coalition will address the subject in future outreach activities.



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Nitrogen Management Plan Worksheet

1 Crop Year, Actual: _____ 3 Crop Year, Recommended: _____
 2 Member ID# _____ 4 APN(s): _____
 Owner/manager: _____ 5 Field # _____

CROP NITROGEN DEMAND Crop Nitrogen Needs / Uptake	NITROGEN APPLICATIONS AND CREDITS		
		Recommended N (t)	Actual N (t)
6 Crop	Total N applied to field (lbs/ac)		
9 Projected yield (t) (Lbs of production/ acre)	<i>Nitrogen fertilizers</i> (conventional and organic)		
10 N crop needs to meet projected yield 2014 (lbs of Nitrogen per acre)	Dry & Liquid N (non foliar)		12
	Foliar N fertilizers		13
	Other N fertilizers		14
7 Actual yield (t) (Lbs of production/ acre)	Available Organic Material N: manure (est.) compost (est.)		15
	TOTAL N APPLIED (per acre)		16
8 N crop needs to meet actual yield 2014 (lbs of Nitrogen per acre)	<i>Soil Nitrogen Credits (estimated)</i>	Lbs N/acre	Lbs N/acre
	Available N carryover from previous year N in irrigation water (annualized)		17, 18
11 Total Acres			19
	TOTAL N CREDITS (per acre)	0	0
	Total N Credits and Application:	0	0
	Crop N needs:	0	0
	Balance	0	0
	Ratio	#DIV/0!	#DIV/0!

Proposed Nitrogen Management Plan Template

