# YouTube Transcript: Total Nitrogen Removed and Irrigation Management Recordkeeping – Instructions for INMP Summary Reports

This video is for growers enrolled in the Central Coast Water Board's Irrigated Lands Program who are required to submit an Irrigation and Nutrient Management Plan (or INMP) Summary Report.

Link to tutorial: https://youtu.be/1gyspUMqqKg

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**In this video, you will learn …**

Which records to maintain for the nitrogen removed and irrigation management sections of the INMP Summary report.

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**What is an INMP Summary Report?**

An INMP Summary report is a report on all sources of total nitrogen applied to a ranch and total nitrogen removed from a ranch throughout the calendar year. It also includes information on irrigation management.

The INMP summary report must include Total Nitrogen Applied data. Please watch the Total Nitrogen Applied Recordkeeping video for recordkeeping details on total nitrogen applied.

TNA Recordkeeping video: https://youtu.be/Y-w882JKz0w

The rest of this video will focus on total nitrogen removed and irrigation management recordkeeping required for INMP summary reporting.

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**When do growers need to begin INMP recordkeeping and submit an INMP Summary Report?**

Growers must keep INMP records from January 1st to December 31st of each year so they can submit an INMP Summary Report on March 1st of the following year.

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**Which Groundwater Phase Area are my ranches in?**

The groundwater phase area where a ranch is located determines when growers are required to keep INMP records and submit an INMP Summary Report for that ranch.

To find each ranch's groundwater phase area, log in to GeoTracker.

The groundwater phase area is located on your GeoTracker dashboard next to each ranch name.

If you have multiple ranches, please check the groundwater phase area for each individual ranch, as they could be different.

Please contact Irrigated Lands Program staff if you have questions.

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**Who is required to keep INMP records and submit an INMP Summary Report?**

Eventually, all ranches will be required to submit the INMP Summary Report.

Growers whose ranch(es) are in Groundwater Phase 1 Areas should begin keeping INMP records on January 1, 2023, or the first day they begin farming activities, so they can submit their first INMP Summary Report by March 1, 2024, and then annually thereafter.

Growers whose ranch(es) are in Groundwater Phase 2 Areas should begin keeping INMP records in 2025 so they can submit their first INMP Summary Report by 2026, and then annually thereafter.

Growers whose ranch(es) are in Groundwater Phase 3 Areas should begin keeping INMP records in 2027 so they can submit their first INMP Summary Report by 2028, and then annually thereafter.

Please keep in mind, growers whose ranches are in Groundwater phase areas 2 and 3 must submit Total nitrogen applied reports prior to INMP reporting. Please see the TNA Recordkeeping video for more information.

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**Which records are required for the total nitrogen removed and irrigation management sections of the INMP Summary Report?**

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**Growers are required to keep records on the:**

**Amount of nitrogen removed from the field through the harvest of crop material for each specific crop *in pounds per crop acre*.**

A grower and/or consultant must weigh the freshly harvested crop material or use other methods to get the average weight of crop material removed in pounds per crop acre.

Growers can consult an irrigation specialist or certified crop advisor to decide how to measure and report the crop harvested. A link to a list of Certified Crop Advisors is provided here: https://www.certifiedcropadviser.org/certifications/professional-search/.

The weight (in pounds) of the crop material tossed out (or the culls) at a packing facility also need to be accounted for.

For crops packed in the field and removed as "boxes," growers must develop and implement a method to calculate an average weight of the crop material being removed in the boxes or packing units.

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**Growers must also determine their:**

**Crop nitrogen removal conversion coefficient for each specific crop**. To get this number, use either the crop-specific nitrogen removal conversion coefficient values found in the Agricultural Order 4.0 Monitoring and Reporting Program (or MRP) on page 36 in table MRP- 4 (link: https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ilp/docs/ag_order4/2021/ao4_att_b.pdf) or develop your own crop nitrogen removal conversion coefficient value(s) by following the standard protocols document on the Irrigated Lands Program website (link: https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ilp/docs/tna/n_rmvl_cffcnt_prtcls.pdf). The INMP report also provides a list in a drop-down menu that contains the crop conversion coefficients available for selection.

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**Lastly, growers must keep records on the:**

**Average Irrigation Crop Evapotranspiration (ETc) for the entire time the crop is grown.**

This is used to predict how much water a plant uses and evaporates (also known as evapotranspiration).

To determine crop evapotranspiration, growers can find the reference evapotranspiration from the nearby CIMIS weather stations and multiply that by their crop's irrigation coefficients.

A list of coefficients is available at the Food and Agriculture Organization (FAO) of the United Nations webpage (link: https://www.fao.org/3/X0490E/x0490e0b.htm). Consult an irrigation specialist or certified crop advisor to help you determine your crops' evapotranspiration values in inches.

Growers can also use the UC Agriculture and Natural Resources' CropManage website (link: https://cropmanage.ucanr.edu/) and resources to help them determine their crops' evapotranspiration values.

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**Which records are optional for the total nitrogen removed sections of the INMP Summary Report?**

Optional, but encouraged methods that growers can implement to remove nitrogen from the field include:

- Sequestration (or $R_{SEQ}$) in woody materials of permanent or semi-permanent crops like fruit trees or raspberry canes.

- Scavenging materials (or $R_{SCAVENGE}$), like cover crops, high carbon amendments, or high carbon woody materials,
- Treatment technologies (or $R_{TREAT}$), like bioreactors or wetlands, and
- Other removal methods that haven't been developed yet (or $R_{OTHER}$).

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**Sequestration ($R_{SEQ}$)**

Keep records of the total amount of Nitrogen removed from the ranch through sequestration in woody materials of permanent or semi-permanent crops (referred to as $R_{SEQ}$), like fruit trees or raspberry canes. The nitrogen is sequestered in the trunk and branches of these crops because it is retained for the life of the crop.

The INMP Summary Report will contain a list of sequestration values for specific crops, but for all other crops not listed, contact a County Crop Advisor or consultant to determine crop sequestration values.

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**Scavenging ($R_{SCAVENGE}$)**

Nitrogen scavenging or ($R_{SCAVENGE}$) is the nitrogen captured by cover crops that would otherwise be lost by leaching into groundwater. Cover crops can scavenge nitrogen from deep layers of soil and bring it back to the surface layers to be reused by crops. This nitrogen is also retained by the organic matter in the soil.

Compost, cover crops, high carbon amendments and high carbon woody mulch all have the potential to increase soil organic matter and therefore increase soil water retention, which reduces nitrogen leaching.

Growers may claim a nitrogen scavenging credit one time per year for each ranch acre by utilizing any of the four RSCAVENGE credit options we will now describe in more detail.

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**Option 1: Cover Crops**

To claim a maximum credit of 30 pounds per acre per year for using cover crops, growers should keep records of:

- Dated photo(s) of management practice(s)
- Location of implemented practice(s)
- Total physical acres where material was applied
- Date(s) of seeding,
- the estimated cover crop biomass and method to estimate,
- the type of cover crop seed, and
- documentation to confirm that cover crops:
    - Were grown for a minimum of three months during the wet/rainy season to prevent nitrogen leaching,

- Have a minimum estimated biomass of 4,500 pounds of oven-dry matter per acre, or in other words, the weight of the dry matter without any moisture or water content. and
- Do not contain nitrogen fixing plants.

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**Option 2: Cover Crop – Calculated Credit**

Growers may receive a higher calculated credit for certain approved cover crops by following the Cover Crop Nitrogen Scavenging Credit Standard Protocols to determine the nitrogen concentration in the crop material.

Please see the Cover Crop Nitrogen Scavenging Credit Standard Protocols on the Irrigated Lands Program website and linked below for more information.

Link:
https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ilp/docs/tna/n_rmvl_cffcnt_prtcls.pdf

To claim a calculated credit for using cover crop(s), growers must keep the same records listed for Option 1 Cover Crops, but also verify:

- The cover crop has a carbon to nitrogen ratio (C:N) that is greater than or equal to 20:1.

Please note vegetative food materials (or crop residues) left on the field are not considered cover crops and the credit may not be applied.

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**Option 3: High Carbon Amendments**

To claim a maximum credit of 30 pounds per acre per year for using high carbon amendments (like almond shells or glycerol), growers should keep records of:

- Dated photo(s) of management practice(s)
- Location of implemented practice(s)
- Total physical acres where material was applied
- Material and material size
- material application rate per acre, and
- testing or documentation to confirm the material is:
  - incorporated in to the first foot of soil,
  - finely ground to less than a quarter of an inch in diameter
  - Retained for a minimum of three months during the wet and rainy season
  - Has a carbon to nitration ratio (C:N) that is greater than 30:1, and
  - Has a minimum application rate of 10,000 pounds per acre
    - If glycerol is used as a high carbon amendment it must have a minimum application rate of 5,000 pounds per acre.

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**Option 4: High Carbon Woody Mulch Materials**

To claim a maximum credit of 30 pounds per acre per year for using high carbon woody mulch, growers should keep records on:

- Dated photo(s) of management practice(s)
- Location of implemented practice(s)
- Total physical acres where material was applied
- Type of high carbon woody mulch material, and
- Testing and/or Documentation to confirm that:
  - the woody mulch material is at least 6 months of age
  - the material's carbon to nitration ratio (C:N) is greater than 30:1
  - the woody mulch was applied at a minimum of 2-inch thickness of particles to achieve a minimum 70-percent ground cover, or at a minimum of 3,000 pounds per acre woody mulch application, and
  - that the crop mulching practices follow recommendations outlined in the NRCS Conservation Practice Standard for Mulching (Code 484) (link: https://www.nrcs.usda.gov/sites/default/files/2022-09/Mulching_CPS_484_Oct_2017.pdf).

Please keep in mind that if a grower applies cover crops, high carbon amendments, and woody mulch on every acre of their farm, the ranch may only receive a maximum scavenging credit of 30 pounds per ranch acre per year.

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**Treatment systems or other methods ($R_{TREAT}$ or $R_{OTHER}$)**

Growers with treatment systems on their ranches and growers participating in collective treatment programs or systems, such as wetlands or denitrifying bioreactors, should monitor the total nitrogen removed from these systems.

To claim a credit for these types of systems, growers should keep records on:

- Dated photo(s) of management practice(s)
- Location of implemented practice(s)
- the system description (for example, is it a wetland, bioreactor, new technology, etc.)
- the area that occupies the treatment system or technology,
- the number of acres feeding water to the treatment system or technology, and
- the season(s) and days per month that the system is operating.

Growers will also need to measure and keep records of the pounds of nitrogen that are removed by the treatment or other technology.

To determine nitrogen removed, monitor the inflow and outflow nitrogen concentration and output volume of the treatment system.

Growers who remove nitrogen from their ranch through innovative and new technologies that are not yet developed should keep similar records to those mentioned.

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**INMP Recordkeeping Summary**

INMP records required for nitrogen removed and irrigation management reporting include:

- Amount of nitrogen removed from the field through the harvest of crop material for each specific crop in pounds per crop acre.
- Crop nitrogen removal conversion coefficient for each specific crop, and the
- Irrigation Crop evapotranspiration for each crop that is grown.

Growers can keep optional records for:

- Sequestration (R SEQ)
- Scavenging materials ($R_{SCAVENGE}$),
- Treatment technologies ($R_{TREAT}$), and
- Other removal methods that haven't been developed yet ($R_{OTHER}$).

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**Why is INMP Summary reporting required?**

The nitrogen that leaves the ranch is called nitrogen discharge. The information reported in the INMP Summary Report will be used to calculate the annual amount of nitrogen discharged from each ranch. In general, nitrogen discharge is the difference between the nitrogen applied minus the nitrogen removed, A – R.

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**How is nitrogen applied to and removed from a ranch?**

Nitrogen can be applied to a ranch through irrigation water, fertilizer (synthetic and organic), and compost.

Nitrogen can be removed from a ranch through harvest of crop material, sequestration in woody materials of permanent or semi-permanent crops (like fruit trees or raspberry canes), nitrogen scavenging (through cover crops, high carbon amendments, and high carbon woody materials), treatment technologies and new innovative techniques (like a bioreactor).

**Why is reporting required - Groundwater Contamination**

When the nitrogen is applied but not absorbed by the crops and/or left on the field after harvest, it can leach, or seep, into underground water storage basins called aquifers. If left untreated, the nitrogen concentration in the water increases over time. High concentrations of nitrogen in water are known to cause harm to those who drink it, especially young children.

**Why is reporting required – Surface Water Contamination**

Excess nitrogen that moves to a surface waterbody, like a lake or stream, can contribute to toxic algal blooms, which makes that surface waterbody unsafe for people and animals.

Understanding the total amount of nitrogen applied to and removed from a ranch will help to reduce nitrate contamination of groundwater, lakes and streams. Your efforts are helping create safer water for our community.

**How do I submit an INMP Summary Report?**

Growers who are members of the approved third-party program, Central Coast Water Quality Preservation Inc., can contact them directly to ask about INMP Summary reporting.

Growers who are not members of the approved third-party program and who are complying with Ag Order 4.0 requirements individually must submit their INMP Summary reports on GeoTracker. It is important to note that all growers are required to submit the same information in their INMP Summary reports, regardless of third-party program member status.

**Where can I find additional information on INMP Recordkeeping and Reporting?**

To find additional information on INMP reporting, visit the Irrigated Lands Program website. Scroll down to the “I am looking for” section and select Total Nitrogen Applied Report / Irrigation and Nutrient Management Summary Report.

This page provides you detailed instructions about INMP reporting.

It also provides a link to the Compliance Calendar, available in English, Spanish and Chinese, which provides detailed information on what is required and when.

**Thank you for working to protect water quality!**

For assistance, please email or call Irrigated Lands Program staff at:

AgNOI@waterboards.ca.gov
or (805) 549-3148
Members of the Third-Party Program can contact Preservation, Inc. at:
support@ccwqp.org or (831) 761-8644.