

Appendix B2

Revisions to Napa County
CAP Agriculture Sector GHG
Reduction Measures

Revisions to Napa County CAP Agriculture Sector GHG Reduction Measures

June 2017

In response to public comments received on the Draft Napa County Climate Action Plan, the County revised the Agriculture sector GHG reductions measures. Specific changes are described below, along with a table summarizing the effects of these changes with respect to the GHG reduction targets and total GHG reductions achieved by the CAP.

1. Modifications to Measure AG-1.

AG-1 will be amended as follows: “Support BAAQMD ~~in ending efforts to reduce~~ open burning of removed agricultural biomass and flood debris.” This will result in AG-1 becoming a qualitative measure in the CAP with no quantified GHG emissions reductions.

2. Add Measure AG-5.

A new GHG reduction measures for the Agriculture sector will be added to the CAP that focuses on reducing emissions resulting from the application of inorganic nitrogen-based fertilizer, which results in nitrous oxide (N₂O) emissions when applied to crops via microbial activity in the soil. The title and description of the new measure (AG-5) is as follows:

Measure AG-5: Support reduced application of inorganic nitrogen fertilizer

The County will work with farmers to either reduce or replace the use of inorganic nitrogen-based fertilizers. Reductions can be achieved through better fertilizer management and expanding use of replacements such as compost produced from local waste management activities or manure from local ranches and dairies. This measure targets reductions in the rate of fertilizer application of 5 percent by 2020, 10 percent by 2030, and 30 percent by 2050 compared to 2014 levels of inorganic nitrogen applied in the County. To track the progress of this measure, the County will work with the farming cooperatives, such as Napa Vineyards, to determine the amount of inorganic and organic nitrogen fertilizers applied per year.

Assumptions

The 2014 estimates for emissions from fertilizer application in the County's baseline inventory was based on fertilizer application rates and crop acreages by crop type. The fertilizer application rates were obtained from available UC Davis cost studies by crop. No data were available on specific amounts of fertilizer used in the County in 2014. Similarly, information on the application of or the ratio between inorganic and organic fertilizer used specifically in Napa County was not available. As a conservative approach, this CAP assumes that all nitrogen-based fertilizers applied in the County in 2014 were synthetic.

With the implementation of the AG-5, an assessment of 2014 inorganic fertilizer application would still be relevant in terms of reducing future N₂O emissions. Although N₂O emissions would occur from organic fertilizers, if those fertilizers are sourced locally, those emissions would already occur from County's forecasted manure management and solid waste emissions. By establishing a 2014 baseline and tracking future levels of inorganic fertilizer application will allow the County to implement necessary programs and incentives to achieve the targets of AG-5.

3. Changes to CAP GHG reductions

As a supplement to the gap analysis summary table in Appendix B-1, the table below outlines the effects of changes to plan measures in the Agriculture sector on the County GHG emissions and achievement of targets. The loss of GHG reductions due to changes in AG-1 and the addition of new GHG reductions from AG-5 results in a slightly lower total annual reduction in 2020 and a slightly higher total annual reduction in both 2030 and 2050.

Table 1: Revised Agriculture Sector Measures and Adjustments to County GHG Reductions (MTCO _{2e} /year)			
Emissions Source	2020	2030	2050
January 2017 Version			
Legislative-Adjusted BAU Napa County Emissions	463,821	348,253	369,563
Reductions from CAP Measures	46,362	57,828	99,871
Napa County Emissions with CAP	417,459	290,425	269,692
Additional GHG Reductions Needed to meet Targets	-57,138 ^a	-145 ^a	158,306
May 2017 Version			
Legislative-Adjusted BAU Napa County Emissions	463,821	348,253	369,563
Removal of GHG reductions associated with Measure AG-1 modifications	236	236	236
Additional GHG reductions associated with Measure AG-5	199	420	1,130
Reductions from CAP Measures (revised)	46,325	58,012	100,765
Napa County Emissions with CAP (revised)	417,496	290,241	268,798
Additional GHG Reductions Needed to meet Targets	-57,102 ^a	-329 ^a	157,413

Notes: Columns may not add to totals due to rounding.

^a Negative values in the table mean that the total GHG reductions from all measures included in the CAP meet and exceed the targets due to a surplus of GHG emissions reductions in the years shown.

BAU = Business-As-Usual

CAP = Climate Action Plan

GHG = greenhouse gas emissions

MTCO_{2e} = metric tons of carbon dioxide equivalents

Source: Ascent Environmental 2017

Measure AG-5 GHG Reduction Calculations

AG-5				
Support reduced application of inorganic nitrogen fertilizer	2014	2020	2030	2050
Existing N ₂ O Emissions from Nitrogen Fertilizer Use (MTCO ₂ e)	2,683			
Cropland inventory and forecast (acres)	70,005	71,699	73,956	78,482
Forecasted N ₂ O Emissions from Nitrogen Fertilizer Use, scaled by crop acres (MTCO ₂ e)		2,748	2,835	3,008
<i>Percent reduced or displaced by organic fertilizers from 2014 levels</i>		5%	10%	30%
Forecasted N ₂ O Emissions from Nitrogen Fertilizer Use after reduction (MTCO ₂ e)		2,549	2,415	1,878
GHG Reduction from AG-5 (MTCO ₂ e)		199	420	1,130