

Ag

AIR QUALITY

ARIZONA AGRICULTURE
AND AIR QUALITY

The Agricultural Consultation and Training Program is an innovative compliance assistance program unique to an agricultural regulatory agency.

This program embraces the Arizona Department of Agriculture's (ADA) goal of encouraging farming, ranching and agribusiness, while protecting consumers and natural resources by utilizing a nonenforcement approach. ACT is not affiliated with any of ADA's enforcement programs, allowing staff members to provide a formal means by which the regulated agricultural community may request compliance assistance without regulatory intervention. Agricultural Consultation and Training serves Arizona's diverse agricultural community by promoting agriculture, conducting training, increasing voluntary compliance and awareness of regulatory requirements and providing agricultural conservation education through compliance assistance and education programs.

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FOR MORE INFORMATION ON AIR QUALITY COMPLIANCE, CALL 602-542-3484.
FOR MORE INFORMATION ON ANIMAL FEEDING OPERATION COMPLIANCE, CALL 602-542-0873.

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Air Quality and Agriculture

BY JOE SIGG, AZFB

THERE IS NO ESCAPING WE HAVE MAJOR AIR QUALITY PROBLEMS IN MARICOPA AND PINAL COUNTIES. THERE IS ALSO NO ESCAPING AIR QUALITY REGULATORY SCHEMES AS THEY WILL CONTINUE TO BE A COST OF DOING BUSINESS FOR AGRICULTURE.

It's one of those realities that will not disappear. What is open to us as agricultural producers is how we are regulated, by whom and how it is measured. We need to be a part of the regulatory solutions, but we also need to be able to operate our agricultural businesses.

a tool for new non-attainment areas in the state. We have promised to act responsibly, and it is incumbent upon all of us to use the process as

AS RESIDENTS, WE ALL HAVE A STAKE IN AIR QUALITY.

intended and not hide behind it. BMPs have been proven – they are a privilege we have asked for and every operator has an obligation to integrate those into his/her operations or face the consequences. BMPs allow you to conduct your normal operations, while reducing particulate matter 10 emissions on an overall basis for your operations.

As residents, we all have a stake in air quality. As agricultural operators, we all have a stake in being able to use tools that allow us to maintain operations that are timely and cost effective.

Learn all you can about the Ag BMP program, and ensure that you are an active participant. Remember, all of us are judged on individual violations, so this is one of those cases where we all need to work together or we will all be working, or attempting to work, in an environment where the privileges are lost.



On several occasions in the legislative process, agriculture has stood up and offered their active participation in regulatory schemes – we just want to be able to help shape it.

We have the Best Management Practices (BMP) authority and it is now available for livestock and

What is PM₁₀?

BY RUSTY VAN LEUVEN, ADA

PM₁₀ is particulate matter that is ten micrometers or less in diameter (as compared to a human hair that is about 70 micrometers). These are very small particles that can invade the natural defense mechanism of the human respiratory tract, penetrating deep into the lungs where it can be lodged. PM₁₀ has a wide variety of harmful health effects, especially for children, the elderly, and people with pre-existing respiratory conditions or cardiovascular disease. Agricultural activities were identified as a source that contributes to the production of PM₁₀.

The Federal Clean Air Act requires that emissions from all significant sources in areas not meeting the National Ambient Air Quality Standards be controlled through effective programs. The regulations are incorporated into the Environmental Protection Agency (EPA) approved State Implementation Plan (SIP). The SIP establishes measures that will be used to reduce emissions and attain acceptable air quality standards. Air quality problems occur when the amount of particles released into the air increase in concentration. Large concentrations of PM₁₀ could potentially violate one of the federal air quality standards.

The Phoenix metropolitan area has not met the Federal Clean Air Act Standards for PM₁₀ since the Clean Air Act was revised in 1990. In 1996, the EPA redesignated the Maricopa County Nonattainment Area to a Serious Nonattainment Area. Just recently, Pinal County was recommended for, but not designated as, a nonattainment area for both PM₁₀ and PM_{2.5}. With this threat to human health,

coupled with repeated violations of the federal health standards for PM₁₀, public agencies and industry groups in the Phoenix metropolitan area have developed and are implementing programs to help the area meet the federal clean air standards.

THE PHOENIX METROPOLITAN AREA HAS NOT MET THE FEDERAL CLEAN AIR ACT STANDARDS FOR PM₁₀ SINCE THE CLEAN AIR ACT WAS REVISED IN 1990.

Agriculture is playing a role in helping to meet the federal clean air standards by implementing an Agricultural Best Management Practices (Ag BMP) Program. The Ag BMP Program was initially developed for row crop agriculture. In 2009, Senate Bill 1225 extended it to include Concentrated Animal Feeding Operations. The program is made up of various categories with participants selecting BMPs from a menu of measures from each category. Agriculture is being proactive in helping the state to meet federal clean air standards.



CAFO Best Management Practices

BY RUSTY VAN LEUVEN, ADA

Senate Bill 1225, passed in the 2009 legislative session, mandates that all beef cattle, dairy, poultry, and swine facilities within a PM10 nonattainment area comply with an Agricultural Best Management Practices (Ag BMP) Program for particulate matter.

Facilities must implement two best management practices (BMPs) in each of the four categories: Arenas, Corrals and Pens; Animal Waste, Handling and Transporting; Unpaved Roads and Feed Lanes; and Unpaved Access Connections. Operators will need to keep records detailing the BMPs selected for each of the categories.

that are verified by scientific research and on a case-by-case basis are practical, economically feasible, and effective in reducing PM10 emissions from all regulated agricultural activity. Members from animal agriculture have been appointed to the Governor's committee and its work groups and have been active in the creation of these BMPs.

BEST MANAGEMENT PRACTICES ARE TECHNIQUES THAT ARE VERIFIED BY SCIENTIFIC RESEARCH.



The new BMPs have been developed and were selected by the Governor's Ag BMP Committee on July 27, 2010. The BMPs go back to the Arizona Department of Environmental Quality (ADEQ) for the final rule writing process and to be added to the State Implementation Plan (SIP). If all goes as planned, the rules will be in place by the new year and new outreach materials will be available in early 2011.

Currently, BMPs are being developed by the Governor's Agricultural Best Management Practices Committee, which is made up of members from the agricultural community. The committee is responsible for adopting an agricultural general permit that outlines BMPs for regulated agricultural activities in order to reduce PM10 emissions. BMPs are techniques

The Arizona Department of Environmental Quality will regulate and enforce the program. The Arizona Department of Agriculture will offer compliance assistance for producers through the Agricultural Consultation and Training (ACT) office.

For information on compliance assistance, contact the ACT office at 602-542-3484.

Farmer Partners with USDA NRCS to Meet Air Quality Requirements

BY **GEORGE COUCH, NRCS**

MARVIN JOHN HAS FARMED HIS LAND IN COTTON CENTER, ARIZONA FOR MORE THAN 40 YEARS. HE IS A TRUE NATIVE TO THE STATE, BORN AND RAISED ON A FARM OUTSIDE OF SAFFORD, ARIZONA. ALTHOUGH HE IS A PIONEER IN THE LOCAL AGRICULTURAL SCENE, HE DOES NOT LET NEWER COUNTY MANDATES BECOME ROADBLOCKS FOR HIS PRACTICE.

“It’s not practical to be reactive and receive fines – better to get things taken care of and find partners like NRCS to help you along the way,” said John.

In June 2010, John worked through the USDA Natural Resources Conservation Service (NRCS) to meet Maricopa County’s air quality regulation that requires farmers to immediately clear tracked dirt from public roads. If public roads

“THERE IS SOMETHING TO BE SAID ABOUT PRESERVING THE GREAT OUTDOORS.”

- MARVIN JOHN

are not cleared immediately of any tracked field dirt, commonly caused by farm vehicles entering and exiting the property, a farmer can be fined up to \$10,000. Through the Environmental Quality Incentives Program (EQIP), John secured funding to pay for rock and the installation of a track-out control system. The only thing John was required to commit to was maintaining the track-outs.

“There is something to be said about preserving the great outdoors,” said John. “NRCS has made my personal investment in it a reality and I am very appreciative.”

The 2008 Farm Bill has given John and many other agriculture producers financial help to improve their operation’s soil, water, and air. In addition to the funds available from EQIP, a special air quality incentive provides funding for more than 30 different conservation practices. You can see the list at <http://www.az.nrcs.usda.gov/programs/air-qualitypractices.html>.

Applications for EQIP and all Farm Bill programs are accepted on a continuous basis. However, a yearly deadline to rank applications for funding usually occurs in the fall. The summer months are a good time to visit your local NRCS office (www.az.nrcs.usda.gov/contact/) to learn about NRCS technical help and apply for funding.

The track-out control system is just one example of how John has leveraged NRCS as a partner. At the road entrances to his fields, John installed track-out control systems consisting of large gravel beds to prevent tracked particulate matter (dust) from pouring into the roads which ultimately improves overall air quality. Among his projects, John has been recognized as a forward-thinking farmer of his time by NRCS employees and fellow farmers. John resides in Buckeye, Arizona with his wife. He is regularly spotted fishing for catfish with his grandchildren on the farm.



Arizona Department of Environmental Quality Air Quality Division

In 1998, Arizona Revised Statute (A.R.S.) §49-457 authorized the formation of the Governor's Agricultural Best Management Practices Committee. Section F of the statute stipulates that the Arizona Department of Environmental Quality (ADEQ), the Arizona Department of Agriculture, and the University of Arizona provide technical assistance and any necessary information to the Committee.

The Committee was formed to address emissions of particulate matter 10 microns or less (PM₁₀) from agricultural activities. To help reduce these emissions, the statute developed an agricultural general permit and best management practices (BMPs) for controlling PM₁₀. ADEQ is currently assisting the Committee by reviewing overall effectiveness, control efficiencies, and emission factors of potential BMPs to reflect changes to the Program as required by Senate Bill 1225 (enacted 2009) which requires the Committee to address emissions from animal operations in Maricopa County or any future PM₁₀ nonattainment area.

Prior to these Program revisions, ADEQ assisted with the initial promulgation of the AgBMP rule for Maricopa County and the 2001 AgBMP State Implementation Plan (SIP) and assisted again in 2008 and 2009 with revisions required by Senate Bill 1552 (passed 2007), all of which are available at ADEQ's web site for the AgBMP Committee [<http://www.azdeq.gov/environ/air/plan/abmp.html>].

Once the Committee approves the BMPs, ADEQ will assist with revisions to R18-2-610 and 611 for submission to the Governor's Regulatory Review Council (GRR) for final rule adoption. The selected BMPs will be further analyzed for overall SIP control measure effectiveness. The technical analysis conducted by ADEQ will be included as a technical support document (TSD) in the SIP revision for the Agricultural Best Management Practices Program, projected for some time in 2011 after the rule is codified in the Arizona Administrative Code.

NRCS Air Quality and Atmospheric Change

FROM WWW.AIRQUALITY.NRCS.USDA.GOV

THE USDA NATURAL RESOURCES CONSERVATION SERVICE HELPS PRIVATE LANDOWNERS CONSERVE OUR NATURAL RESOURCES, AND AIR RESOURCES ARE AMONG THOSE.

In fact, of the 79 resource concerns that are of focus to the NRCS, 12 of them are in air resources. These 12 can be broadly classified into four air quality and atmospheric change issues: particulate matter, ozone precursors, odor, and greenhouse gases & carbon sequestration.

For each of these major issues the latest science and the most relevant technical tools are being applied so that NRCS personnel, cooperators and landowners can make the best decisions regarding air resources.

Training courses are also available to the public by visiting one of the links below. Note that tests and certification of completion are only available through the AgLearn versions of the courses.

Air Quality, Climate Change, and Energy Training

<http://elearning.sc.egov.usda.gov/courses/airclimateenergy/index.htm>

Air Quality Resource Concerns Training

<http://elearning.sc.egov.usda.gov/courses/airqualityresource/index.htm>

Why Should We Care About Air Quality? Training

<http://elearning.sc.egov.usda.gov/courses/whycareairquality/index.htm>

Greenhouse Gases and Carbon Sequestration Training

<http://elearning.sc.egov.usda.gov/courses/greenhousegas/index.htm>



The Clean Air Act

FROM WWW.EPA.GOV/AIR/CAA/CAA_HISTORY.HTML

The legal authority for federal programs regarding air pollution control is based on the 1990 Clean Air Act Amendments (1990 CAAA). These are the latest in a series of amendments made to the Clean Air Act (CAA). This legislation modified and extended federal legal authority provided by the earlier Clean Air Acts of 1963 and 1970.

The Air Pollution Control Act of 1955 was the first federal legislation involving air pollution. This Act provided funds for federal research in air pollution. The Clean Air Act of 1963 was the first federal legislation regarding air pollution control. It established a federal program within the U.S. Public Health Service and authorized research into techniques for monitoring and controlling air pollution. In 1967, the Air Quality Act was enacted in order to expand federal government activities. In accordance with this law, enforcement proceedings were initiated in areas subject to interstate air pollution transport. As part of these proceedings, the federal government for the first time conducted extensive ambient monitoring studies and stationary source inspections.

The language regarding the Clean Air Act can be a bit confusing. To review the Plain English Guide of the Clean Air Act please visit: www.epa.gov/air/caa/peg

The Ag BMP Program

BY RUSTY VAN LEUVEN, ADA



FOR MORE INFORMATION ON THE AG BMP PROGRAM:

Contact the Agricultural Consultation and Training Office of the Arizona Department of Agriculture at 602-542-3484.

The Agricultural Best Management Practices (Ag BMP) Program was established because the Phoenix metropolitan area has not met the Federal Clean Air Act Standards for PM₁₀, causing the Environmental Protection Agency (EPA) to designate Maricopa County a Serious Nonattainment area.

To address agriculture's impact on PM₁₀ the Governor's Agricultural Best Management Practices Committee was created. Members include representatives from Arizona's agriculture industry, University of Arizona, United States Department of Agriculture Natural Resource Conservation Service, the Arizona Department of Agriculture, the Arizona Department of Environmental Quality and a county air department. This committee is charged with identifying air best management practices that focus on feasible, effective and common sense practices that minimize negative impacts on agriculture.

The program consists of numerous categories for each of the agricultural sectors: row crops, dairies, beef feedlots, poultry, and swine.

The categories are:

- CROPLAND
- TILLAGE AND HARVEST
- NON-CROPLAND
- UNPAVED ACCESS CONNECTIONS AND EQUIPMENT AREAS
- UNPAVED ROADS AND FEED LANES
- ANIMAL FEEDING, WASTE HANDLING AND TRANSPORTATION
- ARENAS, CORRALS AND PENS

For row crops, any commercial farmer, including nurseries, who farms more than ten contiguous acres of land located within the Maricopa PM₁₀ Nonattainment Area, Maricopa County portion of Area A, and any other PM₁₀ Nonattainment Area established in Arizona on or after June 1, 2009 must comply with the Ag BMP program. The producer must implement two air BMPs from the list of options for each of the categories and must keep records detailing the BMPs selected and utilized. It is recommended that additional records be kept for BMPs that are not easily visible.

The following are a few examples of the BMPs available:

- LIMITED ACTIVITY DURING A HIGH-WIND EVENT
- PLANTING BASED ON SOIL MOISTURE
- COMBINING TRACTOR OPERATIONS
- AGGREGATE COVER • TRACK-OUT CONTROL SYSTEM
- MULTI-YEAR CROP • WINDBREAK PLANTING
- SURFACE ROUGHENING

If it is determined that a producer is not in compliance with the Ag BMP Program, possible regulatory action could take place. This can include requiring the producer to submit a dust control plan to ADEQ. Failure to submit the plan will result in ADEQ issuing an individual fee-based permit that may include associated fines based on each violation. The purpose of the Ag BMP program is to help ambient air quality in PM₁₀ nonattainment areas reach attainment by implementing BMPs that are verified by scientific research as practical, economically feasible and effective in reducing PM₁₀.

What to Expect from an Air Quality Inspection from ADEQ

BY RUSTY VAN LEUVEN, ADA

THE AGRICULTURAL BEST MANAGEMENT PRACTICES PROGRAM IS REGULATED AND ENFORCED BY THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ). THE PROGRAM IS COMPLAINT-DRIVEN AND COMPLAINTS CAN BE MADE BY THE PUBLIC AS WELL AS CITY, COUNTY, AND STATE AGENCIES. BECAUSE THE PROGRAM IS COMPLAINT-DRIVEN THE ADEQ INSPECTOR WILL NOT PERFORM SURPRISE OR DROP BY INSPECTIONS. HOWEVER, ADEQ MUST INVESTIGATE ALL COMPLAINTS.

Common complaints include emitting too much dust, not containing dust on property and creating dust during a high-wind event greater than 25 mph. The use of best management practices or BMPs helps to reduce dust emissions, which in turn, helps to reduce complaints. Track-out, which is tracking out mud or dirt onto a paved public road, is a violation that falls into local jurisdiction for enforcement. There are city and county ordinances with steep penalties for track-out infractions. Track-out control measures are a BMP that is in the Non-Cropland category and should be implemented.

All investigations are started by a complaint. The inspector will make contact with both the complainant and the producer to gather information to make a determination on the merit of the complaint. If the producer has submitted a general permit record and can document the implementation of BMPs, the ADEQ inspector will close out the complaint. In some cases, ADEQ may request a visit by the Arizona Department of Agriculture's Agricultural Consultation and Training (ACT) office to offer compliance assistance to the producer to help implement BMPs.



If it is determined that the producer is not implementing BMPs, enforcement action may take place. This can include requiring the producer to submit a dust control plan to ADEQ. Failure to submit the plan will result in ADEQ issuing an individual fee-based permit that may include associated fines based on each violation.

For more information on the ADEQ air quality program: visit www.azdeq.gov.

For information on the AgBMP program: contact the ACT office of the Arizona Department of Agriculture at 602-542-3484 or visit www.azda.gov/act/airquality.htm

Odors and AFOs

BY TIFFANY H. GROUND, ADA

Odors are often the foremost complaint made by anyone living within the vicinity of an Animal Feeding Operation (AFO). Many view odor issues as a nuisance. Others are concerned about how these odors could potentially affect their health. In high concentrations some odorous compounds can cause health problems. Most often livestock odors are generated by manure. While there are numerous odorous compounds associated with manure, namely ammonia, hydrogen sulfide, and alcohols, no single compound is responsible for the overall odor.

Although there are many measures that can be taken to reduce odors from a facility, it is also

important to consider how your facility is viewed. It has been said that people often smell more with their eyes. A windbreak can help to reduce the odors that travel off an operation as well as improve the appearance of odor producing areas.

**IT IS IMPORTANT
TO CONSIDER HOW
YOUR FACILITY IS
VIEWED.**



SEVERAL PRACTICES CAN HELP TO REDUCE ODOR IMPACTS FROM ANIMAL FEEDING OPERATIONS. BELOW ARE SOME RECOMMENDATIONS:

- MAINTAIN APPROPRIATE CLEANING TECHNIQUES THAT INCLUDE CLEANUP OF SPILLED FEED, BEDDING, ETC.
- MAINTAIN APPROPRIATE MOISTURE CONTENT ON OPEN LOT SURFACES.
- IMPLEMENT MANURE MANAGEMENT TECHNIQUES THAT MINIMIZE OR CONTROL EMITTED GASES.
- UTILIZE FEED MANAGEMENT TO MINIMIZE INTESTINAL VOLATILE ORGANIC COMPOUND PRODUCTION OR ALTER MANURE NUTRIENT CHARACTERISTICS. THIS MANAGEMENT WILL ASSIST IN REDUCING VOLATILE NITROGEN AND SULFUR COMPOUNDS.

What are Greenhouse Gases?

BY TIFFANY H. GROUND, ADA

Greenhouse gases are chemical compounds that contribute to the greenhouse effect. When these compounds are in the atmosphere they allow sunlight to enter the atmosphere where it warms the Earth's surface. It is then reradiated into the atmosphere as heat. Greenhouse gases absorb this heat and trap it in the lower atmosphere. These gases include water vapor,

ruminant livestock and rice cultivation are large contributors to methane emissions. Greenhouse gases vary in their ability to absorb and hold heat in the atmosphere. HFCs and PFCs are the most heat-absorbent, but there are large differences between naturally occurring gases. For example, nitrous oxide absorbs 270 times more heat per molecule than carbon dioxide, and methane absorbs 21 times more heat per molecule than

CONCENTRATIONS OF THESE GASES HAVE RISEN DRAMATICALLY SINCE THE TIME OF THE INDUSTRIAL REVOLUTION.

carbon dioxide, nitrous oxide, methane, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride. Of these three gases the three main human-created greenhouse gases are nitrous oxide, carbon dioxide, and methane. The concentrations of these three gases have risen dramatically since the time of the Industrial Revolution.

In the past 200 years, methane concentrations have more than doubled, but currently appear to be lessening. Human-made greenhouse gases carbon dioxide and nitrous oxide are likely to increase the most over the next 100 years. Fossil fuel burning is the primary anthropogenic (man-made) source of carbon dioxide, while



carbon dioxide. An interesting fact is that while methane may absorb more heat, its lifetime in the atmosphere is about 10 years, compared to about 100 years for a molecule of carbon dioxide.

Track-Out

BY RUSTY VAN LEUVEN, ADA

Track-out has been one of the biggest violations of the PM₁₀ regulations for agriculture. Track-out is the mud or soil from the tires of farm equipment and other vehicles that is tracked out onto paved public roads. This mud or soil can be crushed into fine particles and easily suspended in the air by passing vehicles. Farm entrances should be maintained in a condition that will prevent tracking of mud and soil onto paved public roads. The producer should conduct periodic inspections, maintenance and reapplication of gravel, and cleaning of paved access road surfaces to accomplish track-out control. Track-out is not

or operator of a dust-generating operation shall not allow track-out, carry-out, spillage and/or erosion to extend a cumulative distance of 25 linear feet or more from all exits onto areas

MUD OR SOIL CAN BE CRUSHED INTO FINE PARTICLES AND EASILY SUSPENDED IN THE AIR BY PASSING VEHICLES



accessible to the public. All track-out shall be cleaned up and removed at the end of the work day. Fines can range from a couple hundred to thousands of dollars depending on the severity of the track-out violation.

A track-out control system is a best management practice in the Ag BMP Program.

Examples of a track-out control system include:

- A GRIZZLY, A DEVICE SIMILAR TO A CATTLE GUARD, WHICH IS USED TO DISLODGE MUD OR DEBRIS FROM THE TIRES OF EQUIPMENT AND VEHICLES PRIOR TO LEAVING A FARM
- A GRAVEL PAD, A PAD OF CRUSHED STONE OR COARSE GRAVEL THAT IS ONE INCH OR LARGER IN DIAMETER
- PAVEMENT

exempt because of participation in the Ag Best Management Practices (BMP) Program. It is one of the regulations that the county will enforce in the agricultural community.

There are city and county ordinances with steep penalties for track-out infractions. In Maricopa County, track-out is regulated by the Maricopa County Air Quality Division through Rules 310 and 310.01. The rules specify that an owner and/

The track-out control system is a highly recommended measure in the Non-Cropland category of the Ag BMP Program and should be implemented along with other best management practices in that category.

Ozone Precursors and CAFOs

BY TIFFANY H. GROUND, ADA

Ozone (O₃) is a highly reactive gas composed of three oxygen atoms. Depending on where it is in the atmosphere, ozone affects life on Earth in either good ways or bad ways. Ozone is the primary component of smog. Although ozone in the upper atmosphere forms a layer that provides protection from ultraviolet radiation, ozone in the lower atmosphere and at ground level can be harmful.

Stratospheric ozone is formed naturally through the interaction of solar ultraviolet (UV) radiation with molecular oxygen (O₂). The stratospheric "ozone layer" extends from approximately six to thirty miles above the Earth's surface and reduces the amount of harmful UV radiation reaching the Earth's surface.

Tropospheric, or ground-level ozone forms primarily from reactions between two major classes of air pollutants: volatile organic compounds (VOCs) and nitrogen oxides (NO_x). These reactions depend on the presence of heat and sunlight, meaning more ozone forms in the summer months. Ground-level ozone is currently considered a "criteria air pollutant" which means that the US Environmental Protection Agency (EPA) has identified it as a pollutant that causes significant health (respiratory) and environmental (visibility and vegetation damage) effects. The EPA has currently established National Ambient Air Quality Standards (NAAQS) for ozone.

While ozone is not typically emitted directly from agricultural operations, it is formed in the lower atmosphere through chemical reactions. Animal operations can influence ozone concentrations in a variety of ways, including:

- BIOLOGICAL ORGANISMS (INCLUDING ANIMALS) EMIT VOCs NATURALLY.
- THE BREAKDOWN OR DECOMPOSITION OF BIOLOGICAL MATERIALS SUCH AS MANURE, FEED, OR MORTALITIES CAN PRODUCE VOCs (THROUGH INCOMPLETE BREAKDOWN/DECOMPOSITION) AND NO_x (MAINLY FROM THE NITRIFICATION/DENITRIFICATION PROCESSES).
- COMBUSTION IN ON-FARM EQUIPMENT OR THE BURNING OF BIOLOGICAL MATERIAL PRODUCES NO_x AND VOCs.

Many common practices can help reduce the likelihood of ozone impacts from animal operations. The following suggestions are not all-inclusive but offer Concentrated Animal Feeding Operations some options that are available for managing the emissions of ozone precursors.

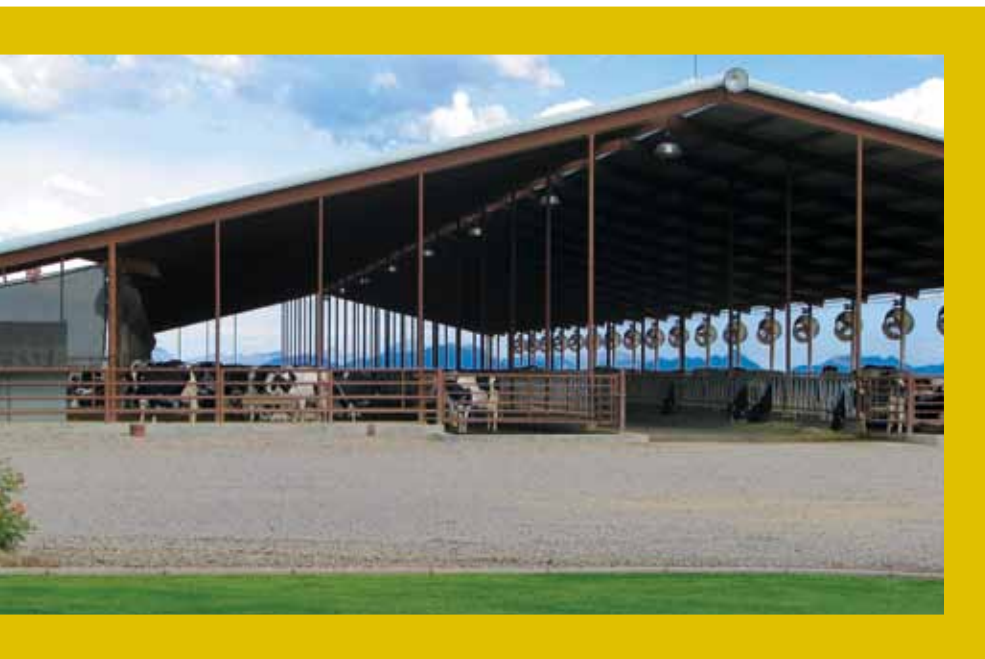
- MAINTAIN APPROPRIATE CLEANING TECHNIQUES FOR SPILLED FEED, BEDDING, ETC.
- MAINTAIN APPROPRIATE MOISTURE CONTENT IN AND ON OPEN-LOT SURFACES.
- USE A SOLID MANURE MANAGEMENT SYSTEM INSTEAD OF A LIQUID MANURE MANAGEMENT SYSTEM.
- COVER THE SURFACE OF STORAGE PILES OF MANURE, BEDDING, FEED, ETC.
- UTILIZE FEED MANAGEMENT OR FEED ADDITIVES TO MINIMIZE INTESTINAL AND MANURE VOC PRODUCTION.
- AVOID SPILLING FEED OR MANURE, AND CLEAN MATERIALS UP QUICKLY WHEN SPILLS DO OCCUR.
- REPLACE OLDER, LESS EFFICIENT COMBUSTION SOURCES OR ENGINES WITH MORE EFFICIENT OR ALTERNATIVE FUEL COMBUSTION.



Excessive Dust is a Don't for Dairyman

BY TIFFANY H. GROUND, ADA

Owner/operators of Animal Feeding Operations (AFO) are familiar with following regulations. Now, not only are they concerned with groundwater and surface water protection, but they are also taking measures to protect Arizona's air quality. Whether it is to combat PM₁₀ or ozone precursors, there is an entire suite of managements and practices available to operators that can be utilized to reduce emissions that affect air quality.



These measures can be costly to implement and maintain so producers often turn to the United States Department of Agriculture, Natural Resources Conservation Service (NRCS) to assist them. Through the 2008 Farm Bill, producers can receive financial and technical assistance for air quality from the Environmental Quality Incentive Program (EQIP), Air Quality Initiative to implement structural and management conservation practices that optimize environmental benefits on working agricultural land.

Robert Van Hofwegan is one of those producers that went to NRCS for assistance. Van Hofwegan's family has been dairying in Maricopa County for three generations and they have seen many changes in the regulatory environment. "As we all know, things never stay the same. This goes with government regulations too. I know often I'm so busy just trying to run the business that things can change without you knowing," said Van Hofwegan. "Your local NRCS office is very helpful in identifying areas you need to comply with and ways to get that done. They are also very helpful in finding financial assistance in accomplishing many of these compliance issues."

In 2009, Van Hofwegan met with a conservation planner from NRCS to develop a Comprehensive Nutrient Management Plan (CNMP) and a Conservation Plan. As defined by NRCS, a CNMP is a grouping of conservation practices and management activities that, when implemented, will ensure that both production and natural resource protection goals are achieved on an Animal Feeding Operation. A Conservation Plan is a tool designed to help better manage natural resources and is where alternatives are included to address resource conditions on an operation. The goal of the CNMP is to aid Van Hofwegan in more efficiently utilizing the nutrients in the animal waste generated on the facility, and the conservation plan was developed to help mitigate the facility's air quality emissions of concern.

A main issue for the dairy was their dirt roads, especially the one that adjoins their facility and is utilized by local vehicles as a main thoroughfare. Of the alternatives presented, Van Hofwegan selected treatment of the dirt roads and utilization and transport of the dairy waste for his first contracts with NRCS. As a result of these

plans, Van Hofwegan treated 29,569 feet of dirt roads with a Soil Stabilizer for Dust Control and NRCS assisted with cost share assistance. Treating roads with a soil stabilizer can reduce PM₁₀ and PM_{2.5} emissions by at least 50%. Van Hofwegan is also approved to install 199,000 feet of High Pressure Pipeline to deliver liquid manure from the dairy holding lagoons to approximately 3,000 acres of cropland. Manure has valuable nutrients that crops can utilize for their development, and by using Waste Utilization the operation will reduce the emissions of ammonia, volatile organic compounds and oxides of nitrogen.

“AS WE ALL KNOW, THINGS NEVER STAY THE SAME. THIS GOES WITH GOVERNMENT REGULATIONS TOO.”

- Robert Van Hofwegan

Agriculture producers seeking to reduce PM₁₀ and volatile organic compounds can apply for help from NRCS. In 2010 NRCS had \$1.8 million in Arizona for the EQIP - Air Quality Initiative, along with technical expertise available to farmers and ranchers to improve air quality. Approved applicants received payment for up to 75 percent of the project expense, and up to 90 percent if the applicant was from a historically underserved group. Seven counties, which were identified as nonattainment areas by the Environmental Protection Agency, were eligible in Arizona for

Air Quality Initiative assistance. Farmers and ranchers in Cochise, Gila, Maricopa, Pima, Pinal, Santa Cruz, and Yuma counties were eligible. Seven NRCS offices in Arizona helped local agriculture producers with the air quality program: Avondale Field Office (623) 535-5055, Casa Grande Field Office (520) 836-1960, Chandler Field Office (480) 988-1078, Douglas Field Office (520) 364-2001, San Carlos Field Office (928) 475-2692, Tucson Field Office (520) 292-2999, Willcox Field Office (520) 384-2229, and Yuma Field Office (928) 782-0860. AFO operators and all agricultural producers can get assistance to conserve Arizona’s natural resources, including air, through the regular EQIP signup which has approximately \$10-15 million available each year. Applications for EQIP are accepted on a continuous basis, and NRCS encourages producers to apply for planning and financial help throughout the year.

The NRCS mission is to help people help the land, and participation in NRCS programs is voluntary. While working with the NRCS programs, Van Hofwegan has developed a good working relationship with his field office staff. “Applying for funding with NRCS can take some time in getting all the info together but once completed and approved, it is very smooth,” said Van Hofwegan. Van Hofwegan and his wife have three children and reside in Buckeye, Arizona.



ADEQ Air Quality Division



THE MISSION OF THE AIR QUALITY DIVISION IS TO PROTECT AND ENHANCE PUBLIC HEALTH AND THE ENVIRONMENT BY CONTROLLING PRESENT AND FUTURE SOURCES OF AIR POLLUTION.

Our core responsibilities include:

- Collecting quality assured and precision ambient air monitoring and management of those data.



- Preparing pollution forecasts to help people limit their exposure to air pollution and air pollution sources to manage their emissions.
- Conducting and collaborating on research and analyses to evaluate pollution sources and their impacts on public health and welfare.
- Investigating complaints and violations of, and achieving compliance with Arizona's air pollution laws.
- Issuing permits to industries and other facilities, and for open burning activities that protect public health and welfare.
- Operating and maintaining accurate, convenient, and affordable vehicle emissions inspections programs.
- Developing air quality plans and rules through partnerships, collaboration and public involvement.

About Arizona NRCS

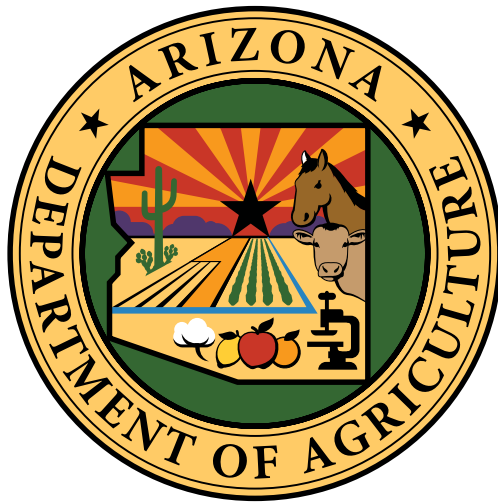
For several decades, the NRCS has helped the people of Arizona conserve valuable natural resources. We provide services to all private landowners who are interested in restoring and enhancing our wondrous landscape through a unique partnership with landowners, conservation districts, state and local governments, American Indian Nations, and rural and urban citizens.

Arizona NRCS is an agency of the United States Department of Agriculture (USDA). We have offices located in USDA Service Centers and other sites throughout Arizona. Our state office is located in Arizona's capital city, at 230 N. First Avenue, Suite 509, Phoenix, Arizona 85003. You can reach the state office by phone at (602) 280-8801 or fax at (602) 280-8805.

The heart of our conservation delivery system is found in Arizona's 41 conservation districts. A conservation district is a legal subdivision of state or American Indian Nation government and operates on the premise that local people know most about local needs. Thirty-two districts in Arizona are established by state law and are governed by a five person Board of Supervisors. There are also nine districts in Arizona established by American Indian Nation law: five on the Navajo Nation, and one each for the Hopi Nation, San Carlos Apache Nation, White Mountain Apache Nation, and the Tohono O'odham Nation. American Indian districts are also governed by local boards which vary in size according to provisions in their charters.

Conservation districts develop their own programs to address the resource problems within their boundaries. NRCS provides the technical assistance to help them achieve their objectives. The districts and NRCS are linked together by mutual conservation objectives as well as by legislation and formal agreements with the Secretary of Agriculture. These agreements give NRCS the authority to provide one-on-one assistance to landowners on non-federal lands. No other federal agency has such authority.





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