



AgSpeak™

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Life is filled with uncertainties – the direction of the economy, market preferences, availability of employees. Forming a strategy and building a plan to enact that plan is just as critical in an uncertain environment as any other time.

Building flexibility into a plan, monitoring results, and adjusting accordingly are key when dealing with uncertainty. As the captain of your own personal ship, be prepared to tack when the wind changes direction.

Uncertainty means that you will not have all the answers when a decision needs to be made. But there is still a best course of action to be taken with the facts that are known. Being bold enough to take a decision and follow through with action are the prerequisites to success when uncertainty causes others to pause and wait.

When so much is unknown, focus on what is known to provide the highest payback. For those of us in the animal production industries, that means taking steps to improve animal environment – air quality, cooling, feed presentation, and water supply.

In this issue of AgSpeak, you will find articles and product information that can help you do just that – improve the things that you know will pay you back. Let VAL-CO help you finish on top!

Phil Risser

President & CEO

Valco Industries, Inc.





Summer Heat Stress is a No-No

by Ericka Mongeau

High summertime temperatures present a slew of productivity challenges to livestock farmers. Heat stress is a common concern, often having detrimental, if not lethal, effects on herd health and flock performance. It feels inevitable, but what if it's not?

We should first seek to understand animal physiology and the symptoms of heat stress. Both chickens and pigs lack sweat glands. Instead, they cool themselves through air movement, surface contact with cool objects, and panting.

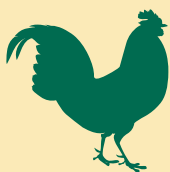
Be alert for these signs of heat stress:

Heat stress results in decreased food consumption, increased water usage, impaired immune response, compromised intestinal integrity, and reduced weight gain, and reduced milk production in lactating sows. In short, unhappy animals, and unhappy farmers.

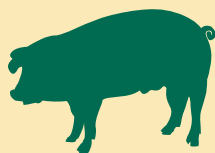
To maintain their comfort level, animals must be able to dissipate more heat per hour than they generate through metabolism. So how can we help? There are three key components to mitigating heat stress: *Insulation*. *Air Speed*. *Evaporative Cooling*.

Before we talk about that, let's review the relationship between heat and humidity.

Signs of Heat Stress



- Crouched on the floor
- Wings spread
- Panting



- Lying on their sides
- Fast, shallow breathing
- Rolling in dunging areas

While it is true that where many barns are, it is hot and humid – it is rarely so at the same time. Usually, it is cooler and humid in the morning and evening, and hotter but drier in the mid afternoon. The crossing point is at about 80°F. So, we have the 80-80 Rule – in most cases, if the air outside is above 80°F (27°C) then the humidity is usually below 80%. This is because the ability of air to hold moisture (Rh) increases as the air warms up. So, in most cases (outside of summertime thunderstorms), when temperatures are above 80°F (27°C), you can safely run cool cells and still effectively evaporate moisture in the barn.

Now, let’s talk about the three keys to cooling.

Insulation.

Insulation conserves energy. Insulated walls and attic spaces help producers control where heat goes. By limiting the effect of solar heat gain through attic and sidewall insulation, the ventilation and cooling systems can more effectively remove the heat generated from the livestock.

Air Speed.

Our primary tool for removing that heat is air speed. Fast moving air creates a wind chill effect and is critical to maintaining house conditions. Fans generate the air speed we need in most houses, so it’s important that they are large

enough and powerful enough to move the right volume of air.

In poultry houses, what was once acceptable air speed at 400 feet per minute is now too slow in many cases. Quite often, 600 to 700 feet per minute is recommended to keep up with the higher heat output of modern broilers. For swine, air speeds of 300 feet per minute can result in a ten degree C decrease in the effective temperature experienced by the animals, depending on the actual air temp outside.

House Type	Air Speed
Cage Pullets	450-500 fpm
Cage Layers	500-600 fpm
Broilers	600-700 fpm
Breeders	450-500 fpm
Swine	300-350 fpm

Just as important as air speed is air uniformity. In poultry houses, air moves fastest in the center of the house where there are no obstructions, but slows down along sidewalls, or over nesting systems, where there is friction.

In pig houses, new research has shown that opening inlets to a greater angle, so air is directed at the pigs in the laying area, and increasing the static pressure to 0.1” WC, greatly increases pigs’ comfort level. They spend less time

in dunging areas, and ammonia and humidity levels are reduced by 13%.

Evaporative cooling.

Evaporative cooling works by adding moisture to the air to remove heat, and then using the ventilation system to remove that heat from the house. For every gallon of water that is evaporated into the barn, 8700 BTUs of sensible heat are removed from the air and converted into latent heat – or humidity – which is then blown out by the fans. For every 2.5% increase in relative humidity from evaporative cooling, 1 degree Fahrenheit is reduced.

Evaporative cooling takes several forms, and these principles are consistent across all of them. Most popular may be pad cooling systems, but fogging systems, misting systems, and sprinkler systems are also options, and each offer something different.

Pad cooling.

Pad cooling systems are likely the most popular, used in most tunnel ventilated poultry barns, and even some swine barns. There are some best practices to keep in mind when using these systems.

1. Generally only use them when outside air temperatures are above 82° F – usually between 10 AM and 10 PM. The reason for this refers to our 80-80 Rule. When the temperature is below



80, there is too much moisture in the air, and not enough holding capacity to effectively evaporate the moisture from the system, as well as the moisture created by livestock. However, when it's above 80, the air is usually dry enough to evaporate the water in the air, and the moisture from the house, meaning cooler conditions and dry litter. If the cool pads can be controlled via an Rh sensor the times of day can be ignored and pads set to only run when the Rh is below 80%.

2. Pads shouldn't run 24/7.

Most of this rule stems from maintenance and product lifespan. The pads need time to completely dry out, otherwise they will soften and disintegrate prematurely. Pumps also need a break. And finally, the air overnight is usually too humid, and the evaporation is inadequate.

3. Fans, however, should continue to run until heat stress is no longer a threat – especially during the

night. As birds cool, they become hungry, and will look to eat, but digesting that feed creates more heat. Running the fans long into the night ensures their heat production is removed and the litter remains dry.

Fogging, Misting, & Sprinkling.

These systems work similarly, using the same evaporative cooling principles as pad systems, but they are customizable to the size, needs, and location of each farm.

Fogging systems create super small droplets of water, only 25 microns in size. The water droplet is so small that it rapidly evaporates and doesn't make floors, livestock, or equipment wet. For this reason, it can



be used as supplemental cooling in large houses, including those equipped with cool pads. It can also be used in naturally ventilated houses, where air movement is slow or inconsistent.

Misting and sprinkling systems have a similar effect. In poultry houses, cooling sometimes comes from the fact that sprinklers encourage birds to get up and move, releasing trapped heat from around them. In swine houses, sprinkler systems in the pigs' lying area helps them to cool by improving evaporative cooling from their skin. These systems do make equipment and livestock wet and require more ventilation to dry out the litter and environment.

Additionally, it's always good to have fresh cool water available at all times. Cool water will help lower livestock's core body temperature. Adequate hydration aids in the cooling process as water is evaporated through elevated respiration. Together, with appropriate air speeds, an evaporative cooling system, and an insulated barn, livestock will have the best chance at remaining happy, healthy, and productive during periods of chronic heat stress.



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- Delivers up to 35,000 CFM¹ at top speeds
- Provides up to 62.7 CFM/Watt² at low speeds
- Direct drive motor means less maintenance
- May be eligible for Energy Rebates in certain areas

¹ - BESS Test #19475 @ 0.10" WC ² - BESS Test #19461 @ 0.05" WC

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Grower Spotlight

Brian Hamilton

Brian Hamilton began farming at just six years old. His grandparents raised beef cattle and poultry, and he helped by bottle feeding calves and cleaning chicken drinkers. The love of farming was deeply ingrained. After high school, he accepted a contract to raise hogs and eventually branched into poultry in 2014.

Starting small, he bought a two-house farm and then added two new houses. Four years later, he purchased another four-house farm. He has always used Val drinkers, the standard in his area, and relies on the Quencher nipples to keep his birds hydrated. He's recently upgraded his pan feeders to the FUZE Feeding System

and has been pleased with its performance. "Like anything, there's a learning curve with usage and management, but performance has been great, and maintenance and upkeep are simple."

In offering advice on success to his fellow chicken farmers, he stressed the importance of a proactive approach. To use equipment to the best of its ability you must take the time to understand it, spend time with the birds, and make adjustments as necessary.



Challenges are abundant within the poultry industry, but most challenging right now has been finding good help, especially given the current economy. Regardless, the best help you can have is that of a great dealership, and he has found that in Jack's Supply. "Jack's Supply get's five stars across the board. They care about their customers, they point you in the right direction, and they always do a good quality job."



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Cage-Free Layers

The Piramide Aviary System: The Growers Choice for Cage-Free Layers

Dutch Country Organics recently partnered with its growers & VAL-CO to install the VALLI Piramide Aviary System on two Indiana farms. Dutch Country Organics specializes in pastured organic eggs, meaning their birds have free access to outside areas where they can dust bathe, scratch in dirt, and forage. To optimize egg collection, the hens are kept inside in the morning and evening hours, where they are free to move about the aviary system where they eat, drink, and lay their eggs.

The Piramide Aviary was chosen because it maximizes vertical space while keeping large wide aisles. Its smaller footprint provides more available space in the barn without compromising nesting or feeding

space. The addition of VAL-CO's hanging feed pan on the top tier feed line trough means the whole system meets American Humane standards.

The ventilation package, which included VAL-CO's Hemisphere® fans, was installed by Buschur Equipment,

a new member of the VAL-CO Dealer Network. Owner Ryan Buschur took on this project as his first major installation and has successfully laid the groundwork for future business. Ryan and his team worked closely with VAL-CO's engineering, technical



Ryan Buschur and family

support, and sales teams to design a successful aviary barn and install the equipment, learning the ins and outs of cage-free egg layer houses and equipment functionality along the way. His leadership has earned him, and VAL-CO, several upcoming projects slated for 2022.

The birds have been placed and are currently performing very well, as all happy, healthy hens should.



Learn More About the Piramide Aviary System

The Piramide Aviary System is just one of many systems VAL-CO offers

for your layer operation. Scan the QR code or visit our website for more

information on how VAL-CO can help you grow!

Scan the QR Code or visit
val-co.it/layer-sys



Resources

Hot Weather Management: Heat Stress, Cool Cells, and Effective Fogging

by Ericka Mongeau

Poultry farmers are no strangers to extremes, especially extreme temperatures. Perfect growing conditions might only exist a few days out of the year, and the rest of the time is spent trying to manufacture the perfect environment. Peak summertime temperatures can be detrimental to flocks, so it's imperative that effective cooling strategies are used. To do this well, first understand how birds naturally cope with heat stress, as well as, the relationship between heat and humidity.

Adult chickens are homeothermic, meaning they produce and dissipate heat to maintain a constant body temperature. The deep body internal temperature of a chicken ranges between 105-107°F (40.6-41.7°C). They can withstand fluctuations fairly well, but their upper lethal limit is 113-117°F. If producers can keep chickens within, or as close as possible to, their thermoneutral zone, then productivity will remain relatively consistent. The comfort zone for poultry is about 90°F (32°C) at hatching, and it

declines to 75°F (24°C) by four weeks of age, before leveling out.

Chickens can be fairly adaptable when it comes to heat stress. They lack functional sweat glands, but still manage their heat loss through circulation and respiration. Birds will first increase blood flow to the surface

of the body in an attempt to lose heat to the air. They will often be seen lifting their wings to expose more body surface. When this proves inadequate, chickens resort to panting, where the cooling effect takes place in the lungs and airways as air is evaporated off the air sacs.

Scan the QR Code or visit <http://val-co.it/WP-HWM> to download the complete White Paper.



EQUIPMENT CARE

COOL CELL PADS

Preventative maintenance will keep cool cell pads working better, longer.

There are some things to keep in mind as you begin the cleaning and prepping process:

- Clogged pads will force fans to work harder and reduce the cooling effect on your birds.
- Mineral deposits will ruin the pads and the only option will be to replace them.
- Dry spots allow hot air to enter the house, from which no cooling effect will be had.
- **Never** use household bleach. It is oxidative and makes pads brittle.

To clean the cool cell pads:

- ☐ Remove pads from the system and inspect for damage - hairline cracks in supply lines, tanks, filter housing, or ball valves. Repair or replace any damaged parts.
- ☐ Rinse dirt and debris from **both** sides using a garden hose and a nozzle. **DO NOT** high pressure wash. It will compromise the integrity of the pad material and result in a shortened pad lifespan.
- ☐ Clean pad framing by removing cobwebs and debris. Check for cracks; caulk, seal, or replace if necessary. High pressure wash if dirty.

- ☐ Clean debris from gutters.
- ☐ Remove debris from the sump using a shop vac or trash pump.
- ☐ Clean out filters and replace if necessary.
- ☐ Refill the system with clean water and turn on.
- ☐ Flush distribution pipe for about ten minutes and unclog any plugged holes using a small screw driver or wire brush. Flush again.
- ☐ Replace pads into system. Make sure water is getting all the way to the front of the pads. If it's not, the pads may be upside down.

Throughout the hot weather season, we recommend following a maintenance schedule.

Daily:

- ☐ Check that all pads are uniformly wet.
- ☐ Maintain a water bleed-off rate of 3-5% per day.
- ☐ Completely dry pads at least once every 24 hours.

Weekly:

- ☐ Flush the reservoir and drip pipe.
- ☐ Check that all drip pipe holes are flowing water.
- ☐ Clean water filters.

Monthly:

- ☐ Thoroughly clean pads and system using the procedure listed here, and an integrator-approved cleaner specific to cool cells, if necessary.

In The Spotlight

Employees

**Name:**

Eduardo Garza Diaz

Position:

Regional Sales Manager Mexico and South America

Where were you born?

I was born in Veracruz, Mexico but I lived in Monterrey and Puebla most of my life.

Hobbies:

Playing sports, being with the family, spending time outdoors

Favorite family tradition:

Christmas dinner and New Years Eve – the whole family gets together, we play some table games, make jokes, enjoy dinner and just have an extremely good time. The next day, we cook “Paella”. My family loves being together.

First Job:

Regional Procurement manager at CEMEX MEXICO. I oversaw all the

purchases of goods, spare parts, and services for all the ready-mix concrete plants that the company has in 5 states within Mexico.

Biggest pet peeve:

When we do not think out of the box. When someone is not open to doing other things (to accept a change in something). Also, when people are looking for who did it and not looking for ways to solve the problem.

Describe yourself in 5 words:

Honest, Loyal, Friendly, Reliable, Creative

If you were an animal, what would you be?

A dog – I like being around people

If you could share a meal with anyone, living or dead, who would it be and why?

With my family, but if I must choose just one person, it would be my father! He helped make me who I am.

What changes have you seen in your years in the industry?

I’ve seen many changes like great people retiring while others were just coming in to the industry. I’ve seen how many companies change from doing things one way and then using different technologies to do it in a better, more efficient way. It’s different in each country where the production

conditions vary but, in the end, each one is looking for better performance and results to continue moving forward in this competitive industry.

What technology do you see coming in the industry?

I see all kinds of technology in this industry being used directly on the farms and in processing plants as well as indirectly, used by us, the companies that manufacture equipment for the industry. We need to be ready to support our customers to save every penny because each day throughout the world this industry becomes more competitive, and the end results keep getting closer to each other. We aim to get you the best results every time and we have the knowledgeable people to help you achieve the best performance you can get with our equipment.

What excites you about your work and makes it easy for you to come to everyday?

The chance to support my customers – helping them be successful and growing together. Being part of a great company, where doing things correctly is of utmost importance. That means doing things ethically and always thinking of others. And of course, my family – they are everything for me! Each step I take is just for them.

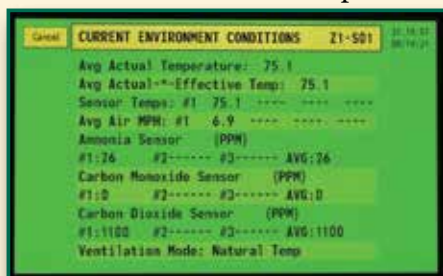


Products

Ventra XT™ Controller



The **Ventra XT** controller from VAL-CO incorporates swipe screen navigation on a large 7" touchscreen and employs an intuitive user interface that is very easy to learn. The Ventra XT also has a leg-up over other controllers on the market as *it is the only one with Carbon Monoxide sensing*. Check out the innovative Ventra XT to take control and keep safe!



2 Piece Turkey Feeder Tower



The new **Two-Piece Tower Turkey Pan** is ideal for retrofits

or replacements. This new tower allows the feeder to be installed directly on to the feed line in place, rather than slid on from the end.

Features & Benefits

- Easily installs in place on the feed line.
- Durable metal construction for stability.
- U-Clip ensures pan locks securely to the line.
- Taller struts allow easy access for larger birds

V-Fan™ - Multiple Models



The versatile, highly efficient, variable speed **V-Fan** is now available for practically any application! Models are available in **Fiberglass (36", 50" 54")**, **Sable™ (36", 54")**, **Galvanized (36", 54")** and **Z-Material (36", 54")**. Motor options include single or three phase inputs in either 50 or 60 Hz at 200-240V. A 480V motor is available on the 54" Sable and FG models.

***BONUS:** The V-Fan may be eligible for Energy Rebates in certain areas!*

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