

## VINTAGE CONTROL Vs NEW CONTROL



Vintage Control



New Control

On my way home yesterday I saw an antique car coming towards me. It was cruising along in the slow lane while all the commuter traffic rushed on by. As it neared me a new sports car came zooming along in the fast lane and made the antique look like it was frozen in time. I must have been thinking about that image when I went to bed last night and the realization that I needed to write this article somehow worked its way into my subconscious dream factory. I ended up having a dream about a vintage (antique) setter/hatcher control having a conversation with a current generation control. The conversation went something like this:

Vintage Control (VC): "Hey, sonny, why would anyone prefer you over me? I've been doing my job faithfully for years!"

New Control (NC): "I know you have, old fellow. You're a legend. But you know, a lot of things have changed since you were created."

VC: "Like what?? Nothing important, I'll tell you that!"

NC: "Well, let's compare your features to mine. I'll tell you what I can do, and you tell me how you handle the same situation. OK?"

VC: "Bring it on, youngster!"

NC: "I have a computerized logic system that allows me to predict when the cooling water should be slowed or stopped to ensure that the water sitting in the cooling coils doesn't overshoot the cooling and cause the heat to come back on. Turning on heat in a setter is wasteful off energy AND bad for bird quality. In most cases the energy savings alone pays for me in less than two years."

VC: "I've been turning heat and cooling on and off everyday for years. Heat on, heat off, cooling on, cooling off. Repeat, repeat, repeat. So it uses some electricity and some water. So what? The real point is I'm already paid for. Who knows if the folks that own me will still be in business in a year or two? My owners are sticking with me."

NC: "I am custom designed to handle up to six different temperature zones in one setter. This allows me to hold higher or lower temperatures in the front and the back of the

setter or anywhere in the setter where egg age, fertility, flock age, or breed would benefit from different set points as compared to the rest of the eggs."

VC: "One zone is all you need. Mother hens don't have zones. Setters don't need them either!"

NC: "I can change temperatures at various stages of the set or hatch cycle. I can also change temperatures during different seasons of the year. I can change temperatures from set-to-set if the egg age profile changes."

VC: "Well, you can't beat a thermostat I always say. Consistency. Pick a temperature and live with it. And besides, I use mercury to gauge temperature. None of that electronic stuff for me!"

NC: "Chick Master and Rockwell made me with standard, readily available components. If anything does go wrong with me, my new owners can get components from Chick Master OR from any Rockwell distributor. My Allen-Bradley controller has been the industry standard for decades. There are no custom boards or components in me."

VC: "Well that makes my case for me. In order to work, you have to have custom printed circuit boards. You have to have components that are no longer manufactured if you want to be appreciated. My owners work on me every week. They appreciate the importance of my spare parts - why sometimes it takes months to find components that fit in me, so they better treat me with love and kindness. They hardly ever work on you and when they do the parts are available in hours. How . . . .common."

NC: "I've been built to enable me to get input from outside the setter/hatcher in the future so I can help my equipment to perform better in its' environment. Soon I'll be able to sense incoming water temperature to improve cooling even more. I can learn to sense incoming air temperature, relative humidity and I can calculate the cubic footage of air entering the setter/hatcher. And I can communicate all of these things to the computer that is controlling the hatchery environment overall."

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*We invite you to attend our*  

**OPEN HOUSE**

September 26-28, 2006 - Medina, Ohio, USA

### To Our Hatchery Friends:

Chick Master is pleased to invite you to our annual Open House in Medina, Ohio, USA on September 26-28, 2006.

We have organized a power-packed three day program of exhibits, hands-on training, and presentations by the best and brightest representatives our industry has to offer. Everyone who attends is sure to come away with practical and implementative ideas that will significantly improve your business!!

This year it will be a three day event with full programs for English and Spanish speakers.

For more details and a registration form please visit our website [www.chickmaster.com](http://www.chickmaster.com) or contact Patricia Montane by telephone on 201 871 8810 ext 106.

*Hope you find this issue entertaining and valuable. Please feel free to send us your comments, questions or criticisms*

**We Look forward to seeing YOU in Ohio**

## Genesis M Control



Designed for multi-stage two zone setters and the associated hatchers, the GeM is a brilliant and valuable tool for efficient operations using PLC controls from Rockwell Automation.

**Learn More About the New Chick Master GeM control in the next issue**

## The *Art* of

# STAGE PROGRAMMING

### Part Three: Block Warming Phase

In continuation of the Articles which were contained in our two previous Chick Master e-News Bulletins, we are now in a position to look at the next two stages of the "Step" program, again examining in detail what is happening, how it is happening and why it is happening.

These stages are shown below and are from a recommended stage program, used in many Chick Master Avida hatcheries throughout the world;

Stage Number	1	2	3
Temp Set Point	60.0	80.0	100.4
Temp High Alarm	65.0	100.9	100.9
Temp Low Alarm	55.0	55.0	70.0
Humid Set Point	30.0	30.0	30.0
Humid High Alarm	100.0	100.0	100.0
Humid Low Alarm	60.0	60.0	60.0
Man. Damper Set Point	0.0	0.0	0.0
Min. Damper Set Point	0.0	0.0	0.0
Damper Mode	MAN	MAN	MAN
Cooling Mode	VWet	VWet	VWet
Aux Fan On At Damper	40.0	40.0	40.0
Aux Fan Auto/Man/Off	off	off	off
CO2 Set Point	0.0	0.0	0.0
CO2 High Alarm	2.0	2.0	2.0
CO2 Low Alarm	0.0	0.0	0.0
Turning Tilt Time	60.0	60.0	60.0
Level Time (mins)	1.0	1.0	1.0
Time in Hours	8.0	5.0	7.0
	delayed start	block pre warm	block warming

### STAGE 3 - The Block Warming Phase

Having warmed the eggs up from storage temperature to a level above physiological zero during Stage 2, Stage 3 will now bring all the eggs simultaneously up to the temperature set point of 100.4°F, (or 38.0°C). However, it must be noted that we do not wish to encounter low temperature alarms during this stage which is reflected in the value of 70.0°F in the low alarm level. This is below the temperature set point of Stage 2 in order to prevent any unwanted low temperature

alarms. It is unlikely that there will be high temperature alarms but we must still have a value in to cover the time when the eggs arrive at temperature set point. It is needed as a safeguard and is usually fixed at 0.5°F above the temperature set point in any given stage.

Throughout this stage the dampers remain closed (i.e. set on Manual Zero). It will be observed that humidity will rise as the eggs warm and start to release moisture. This is a good thing and the Step Program will take this into account with humidity set points to suit. We know from long experience that the Avida setter is well sealed and humidity will rise to well in excess of 65% and very often it can rise to 80% or more. Therefore in most circumstances, it is only necessary to have what is termed a "nominal set point", which the 30% RH value in Stage 3 certainly is.

However, again to prevent any unwanted low or high humidity alarms, we choose to use a value of 60% for the low alarm which warns of any potential leakage in the cabinet and a high alarm of 100% which is the theoretical maximum that could be expected.

A CO2 High Alarm of 2% is used, which again is a nominal value and takes care of any chance that a value is in the data file area of the PLC of the machine and therefore eliminates nuisance alarms. This is necessary even though a standard Avida setter does not require a CO2 sensor.

Turning is set at 60 minute intervals with a minimal 1 minute in the level position in order to provide the optimal turning required at the beginning of incubation. Since the eggs are endothermic (absorbing heat) it is not necessary to have a longer period of positional change as is the case once the incubation period progresses.

The time of this stage will of course depend on the

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### Vintage Control Vs New Control continued . . .

VC: "You can do all of that?? Well, I've learned to ignore all of those things. Distractions I say. What do I care if the incoming air is humid or not? I'll just turn on the humidity sprayers. So a few hundred embryos die. There's a lot more where those came from."

NC: "I can run on temperature settings, but I perform better when I am set to run on humidity control and when I am programmed to run on CO2 controls. The CO2 probe is an option today, but I am designed to accept information from it and manage the dampers accordingly. Stable humidity which is a by-product of controlled CO2 is the key to quality chicks!"

VC: "I don't know anything about carbon dioxide, but I manage humidity too. Since my dampers are manually set, I do everything I can to blow all the humidity out of the box, then I turn on the spray units to put it back. It's not pretty, but I really have fun doing it. And where do you get off talking about chick quality. It's how many you hatch that counts. Who cares if they die on the farm? That's not my problem!"

NC: "I have many features to help the hatchery manager. I can be programmed to change temperature and/or humidity at predetermined times; I can communicate everything I'm doing to a central recording point; I can tell everyone when there is an alarm condition; I can communicate when my doors are open, when my fans are not running at the correct speed and many other things. With the right accessories, I can even call my owner's cell phone to tell him there is a problem!"

VC: "Well aren't you the chatty one! A control's place is like that of a work horse. Just do the same job today you did yesterday and be quiet. If they want to change temperatures, they'll come in a change the 'stats. If they want to change humidity, they'll push the buttons. If there's an alarm, I have a great horn that would wake up the dead unless the dead are chickens of course. Hee, hee. . . Little hatchery humor there."

NC: "Well, old fellow, I guess I'm not going to convince you that times have changed. I gave it my best shot, but I have to refocus on my work now. It's coming up on three in the morning so I need to raise the humidity and drop the temperature in the hatcher I'm running. Nice chatting with you."

VC: "Anytime. I appreciated the little talk. I'm waiting for parts myself, so I'll probably be here for a week or two before I can go back to work. Maybe we can continue this talk later."

And with those final words, the new control went back to work, leaving the vintage control looking as if it too had been frozen in time ❄️

Save the date!

**Open House 2006**  
Medina, Ohio, USA  
Sept. 26th-28th

## FUN TIME

A duck walks into a feed store and asks, "Got any duck feed?" The clerk tells him, "No, we don't have a market for it so we don't carry it." The duck says, "Okay," and leaves. The next day, the duck walks in to the feed store and asks, "Got any duck feed?" Again the clerk says no and the duck leaves.

Next day, the duck walks in, and asks, "Got any duck feed?" The clerk says, "I've told you twice, we don't have duck feed, we've never had duck feed and we never will have duck feed. If you ask me again, I'll nail your feet to the floor." The duck leaves.  
The next day, the duck walks in and asks, "Got any nails?"

"No."

"Got any duck feed?"

### The Art of Stage Programming continued . . .

average egg size in the egg pack of the Avida setter and once again can be calculated using the Chick Master Warm Up Time Calculator (available on our web site). The overall timing required between stage 2 and 3, should however, be less than 12 hours. If this length of time is any greater than 12 hours, then this can affect the timeliness of the hatch and should be discussed fully with our Chick Master Technical Service Team.

Upon reaching temperature set point in Stage 3, we consider the counting of true incubation hours to start. This convention works best, as each circumstance is a little different. By using this standard frame of reference we can communicate with each other knowing exactly what point in the incubation process is being discussed. Should it be necessary to look at hatch timings and to make adjustments to these, we can then both work from the same basic premise.

All our eggs in the Avida setter are now launched on their journey towards a successful hatch. By the end of Stage 3, the embryos will already be showing signs of the benefits derived from the sealed box environment in which they are starting to grow. We move forward in the Single Stage process in learning how we achieve a perfect synergy of all the important elements of this system of incubation in the next E-news when we look at the all important "CO2 Concentration or Closed Damper Phase", as Stage 4 will be explained in detail.

Watch this Space! 



David Marsh



Angel Salazar

## Ask the Eggsperts

Your chance to ask our hatchery and embryology experts the questions.

Q

I have many embryos dying between 1 and 3 days of incubation. Are my setters causing this?

K.V. - Thailand

A

Probably not, need to check out egg handling from collection, storage, transportation, fumigation etc. to find where the problem is. Use of C/M data loggers recommended. Other areas such as breeder nutrition or flock medication may need to be considered if this is a problem that comes and goes.

Q

We are getting very poor results from our young flocks. We are a multistage hatchery. Any suggestions on what might improve my hatch?

P.P. - Poland

A

a. Hatching eggs from young broiler flocks present some special challenges to the hatchery manager. First, the interior egg-quality is quite high and egg shells are thick with relatively low conductance. Thus, it is always a good idea to allow a minimum of 5-7 days storage whenever possible. This is done to lower albumen quality and facilitate gaseous exchange once the incubation process is underway.

b. Secondly, young broiler flocks also produce small eggs. Small eggs produce less embryo heat compared to large hatching eggs from older flocks. Fertility could also be below optimum levels. Possibly as a partial result of the above, chicks from young broiler breeders take longer to hatch. Many times it's necessary to set these eggs 2-4 hours earlier to pull the hatch at the same time as those chicks from older flocks.

Alternatively, if the entire multistage setter cabinet is going to be loaded with hatching-eggs from young breeders, a dry-bulb set point in a range of 99.6 - 99.7°F could be suitable to produce a timely hatch. A setter wet-bulb set-point in a range of 84-86 °F should be adequate. It's also a good idea to keep the wet-bulb set-point in the hatcher at 85 °F starting at the end of transfer until pulling the chicks from the hatcher box.

Please send your "Ask the Eggsperts" questions to: [schapple@chickmasteruk.com](mailto:schapple@chickmasteruk.com)

## A FINAL THOUGHT...

"The key to everything is patience.  
You get the chicken by hatching the egg - not by smashing it."

Arnold Glasow



Please contact us for any product or support information you may require

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