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Summer has certainly arrived in Texas with 95-100 degree temperatures and very little rain. The West and Southwest regions of the state continue to face drought conditions and the Eastern region that experienced a fairly wet Spring is now drying out. Corn is over $7 a bushel, diesel is nearly $5 per gallon and the calf market has softened. Beef cattle producers are certainly facing some tough issues at this time, but we have survived tough times before and I predict that we will figure out a way to do it again. We hope you enjoy this issue which will discuss Cattle Handling Pointers, Open Cow Cost, Hybrid Vigor in the Cowherd and the 54th Annual Texas A&M Beef Cattle Short Course.

In this Issue:

Cattle Handling Pointers

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Safe and effective cattle handling has always been important. Recent events involving a harvest facility in California and auction markets in several states, have served to heighten awareness of the importance of handling cattle appropriately. Following is a list of ten handling pointers worthy of review before your next trip to the pasture or pens.

The role of a stockman is to create movement in cattle and then use position to control and manage that movement to the desired result. When cattle lose movement they become reluctant to work for you and excessive pressure and driving aids are more likely to be used to force movement amongst the cattle. Creating and managing movement is the key to low-stress cattle handling.

There are three basic principles of cattle behavior that when used properly can improve the ease and speed of working cattle while reducing stress and increasing efficiency. Those principles are:

1. Cattle want to see you.

An understanding of how cattle see is basic to getting cattle to respond to your position when working livestock. Cattle can see everywhere but directly behind them or a small blind spot in front of them. Movement toward the blind spot behind them causes animals to turn their head to keep you in their line of sight. This can be used to your advantage to change direction of cattle or to your detriment if you are trying to drive cattle straight. When working from behind, it is important to keep moving side to side to prevent cattle from turning in an effort to keep you in their line of sight.

2. Cattle want to go around you.

Armed with this tip, position yourself such that, when they do go around you, they are pointed directly at the gate or destination you had in mind. They'll think it was their idea to go there!

3. Cattle want to be with and will go to other cattle.

A herding instinct is natural among 'prey' animals. There is safety in numbers and they know it. As stockmen we can take advantage of this natural instinct as we work from the front of cattle. If you start at the front, the back will follow. This is also why you should never leave one animal alone in a pen.

For an excellent visual example of the herding instinct, view a video found on the web entitled "*Battle at Kruger*".

Keeping these three principles in mind, the following are a few suggestions that will improve the ease of handling cattle, whether they are being gathered from the pasture or processed through the corrals.

1. "The only way to work cattle quickly is slowly."

This quote is from a humorous book entitled *Don't Squat With Your Spurs On*. Patience is a great virtue when gathering and working cattle. When we get in a hurry, inevitably we put excessive or incorrect pressure on cattle, which usually results in an unintended reaction from the cattle. Then we get to ride (or walk) to the back and start over…

2. Work from the front to draw cattle to you.

This goes back to the basic principle #1. Cattle can be easily controlled from the front if they are not afraid of a human. (If they are afraid you are a long way away from being able to handle cattle using low stress principles). Working from the front helps keep cattle from wanting to turn back in an effort to keep you in their line of sight. By moving in and out of the flight zone and point of balance, cattle can be easily drawn forward and past you to get them to go where you need them to go.

3. Apply pressure when cattle have a place to go.

Low stress livestock handling is not about handling cattle with no pressure. In fact the success of handling cattle correctly depends on knowing when and where to apply pressure and how much pressure to apply. The other key component to low stress handling is setting the cattle up to go where you want them to go before you apply pressure. Just as important is to release the pressure as soon as the desired result is achieved.

4. Pressure from the side.

This relates back to working from the front and down the side of an animal and not working from directly behind. The side of an animal is anything from the tip of the nose to the pin bones. Different animals respond differently to pressure and a good stockman must develop the ability to read livestock and anticipate the animal's response before applying pressure.

5. Cattle must be comfortable to go by you and stay straight.

If cattle are not comfortable going by you, they will not work for you very well. Working from the front requires you to get the cattle able to pass you without balking or spooking. This simple principle facilitates penning, sorting and processing cattle. The key is to position yourself such that, when cattle go where they want to go, it is exactly where you intended for them to be.

6. Pressure cattle from behind only when absolutely necessary.

Like any 'prey' animal, cattle cannot see directly behind themselves. If you assume a position directly behind cattle (in their blind spot), they will turn to one side or the other in order to see you. To 'drive' cattle in a straight line, assume a position behind their point of balance (shoulder) and off to either side.

7. When working cattle, move in triangles.

Sounds odd, but it works. Move in straight lines. For example, if you work in an arch pattern behind the cattle, you will find them being drawn from side to side (and consequently walking in a zig-zag pattern) as they follow your movement. Invade their flight zone to create or correct movement. Retreat from their flight zone to slow or stop movement.

8. Going with the flow of cattle slows them down or stops their movement.

It's all about that point of balance – as you move in the same direction the cattle are traveling, when you approach a position parallel to their point of balance, they will slow down, and as you pass the point of balance they will stop and/or reverse their direction.

9. Going against the flow of cattle initiates or accelerates their movement.

The inverse or opposite of pointer # 8. Ever filled the chute, then pressured the last animal in line to move the others forward? It's likely he or she had no place to go and nothing happened. Next time, try leaving their flight zone, walk up ahead of the line, then re-enter the flight zone of the first in line and walk alongside the chute, front to back, and see what happens. We suspect that as you pass their point of balance, they will step forward. The one in the front will 'pull' the others forward.

10. Cattle work best when *they* are ready - You have to get them there..

Cattle (like husbands) are not mind readers. You have to teach, condition and prepare them. Unfortunately, today's cattle owners are short on time and experienced labor, and consequently, don't spend time with their cattle as did the stockmen of days gone by. Perhaps there's not time to educate the entire existing herd, but quality time spent with replacement heifers will pay dividends for years to come. Spend time with heifers (in both the pasture and the pens) when you *want* to, not just when you *have* to.

The days of "whoop & holler" cattle handling need to pass – quickly. Numerous others will handle your cattle after they have left your care. Bad habits and unruly behavior are learned. Make sure your cattle (calves) are started correctly. First impressions are critical – as Will Rogers once said "You never get a second chance to make a first impression."

Safety and wholesomeness of our food supply have long been important. Our preservation techniques have progressed from smoking, drying and salting, to canning, to refrigeration and freezing, to vacuum packaging and most recently to irradiation. The US food supply is the safest and most wholesome on the planet.

Beef consumers remain interested in safety and wholesomeness, but are more concerned than ever before about where and how their food is produced. When working slow and correct (see #1), shouting, whistling, poking and prodding cattle is unnecessary. In fact, they are counterproductive and distract cattle from what you really want them to do.

Open Cow Cost

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How much an open cows costs depends on the cow, as well as what and when something is done with her. The illustrations used here are not intended to be profit-loss analyses or even simple cow-calf budgets. The intent is to illustrate cash flow relationships, over time, between costs and revenue; and to illustrate how a good management practice like pregnancy testing minimizes risk.

Southwest SPA data indicated that the average cost to maintain a cow in Texas was $440 in 1991. That annual cost climbed steadily, until reaching $528 in 2006 (SPA analysis includes all costs i.e. depreciation, feed, pasture, vet, labor, taxes, etc). Two years later, economists think average annual cow costs have probably climbed another $20 or so, mostly due to fuel and supplement. That means about $550 per cow in 2008. The illustration below uses a cow cost of $523 because livestock depreciation was removed and used as a direct replacement cost.

Weaned calves are worth $500 to $700 and a bred replacement cow (private treaty) will cost about $1200 to $1500 these days. In view of this, the first objective should be to attend to management that minimizes the need for replacements (i.e. open cows). Many of those management practices have been covered in previous newsletters. Secondly, with replacement costs as high as they are, it will likely take several calf-crops to recoup the cost of an open cow: that is, the cost of her replacement, plus the replacement's annual maintenance costs once she enters the herd.

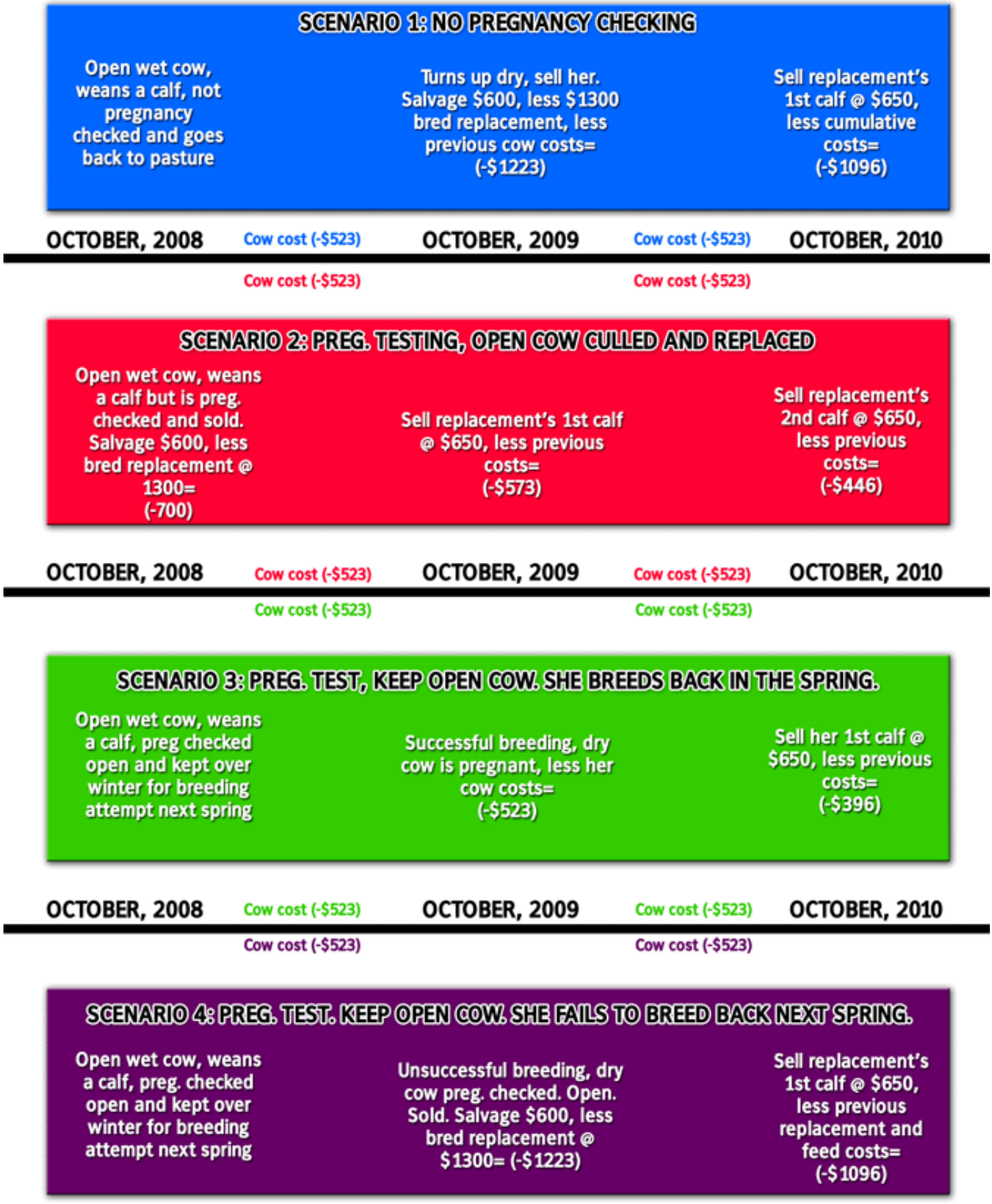
For illustrative purposes, let's compare an open cow in four different scenarios. Costs and revenue will be held constant and, for simplicity, we will also assume that stocking rate will not need to be adjusted over the 2 year window used here. We will purchase a bred cow for a replacement, though obviously other options do exist. Scenario 2 uses pregnancy testing at weaning. Scenario 1 does not: dry cows are simply culled at weaning. This means that management decisions are delayed by 12 months. Scenarios 3 and 4 also use pregnancy testing, but instead of selling the open cow, she is held over the winter for an attempted second breeding in the spring.

Table 1 shows what an open cow costs at the end of 2 years. Note that the cost of an open cow was lowest in Scenario 3: where an open cow was held over and given a second chance to breed. Note that at the end of two years, it only cost $396**.....IF she got pregnant**. If she failed to get pregnant a second time, then this quickly became expensive - costing $1096 at the end of two years (Scenario 4). Thus, in order to balance risk vs. cost, the most attractive scenario (of the four used here) is number 2. In Scenario 2, an open cow is identified early and replaced with a bred cow - costing $446. This is a little more than $396, but without the added risk of possibly costing $1096. In the end, Scenarios 1 and 4 work out the same, because either way, there is no revenue from the replacement female until the second year (October, 2010).

Table 1. Cost of an open cow at the end of 2 years, under 4 different scenarios

	COST
Scenario 1 Cull by finding dry cows	- $1096
Scenario 2 Cull by preg test	- $ 446
Scenario 3 Preg test. Keep open cow. Breeding successful	- $396
Scenario 4 Preg test. Keep open cow. Breeding unsuccessful	- $1096

(see time lines below for cost and revenue cash flows)



In summary, it will be important to cut costs, but spending money on the right management practices will be more important than ever. This will mean getting brood cows pregnant and keeping them in production. Cull open cows as early as possible. If the decision is made to risk keeping an open cow for a second chance at breeding, it is critical to choose cows that may have a higher probability of breeding. Typically those are middle-aged cows that have never missed a calf before, and that are in reasonably good condition. Choosing those kinds of cows may lower risk, but it certainly won't eliminate it. Individual ranch circumstances and calf prices, as well as replacement female options and costs, will influence the decision to risk keeping an open cow.

Hybrid Vigor in the Cowherd

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Recently there has been a lot of press about the rediscovery of hybrid vigor or heterosis, perhaps because there has been widespread increase in the use of single trait selection for carcass quality over the past several years and less emphasis on cow efficiency traits. However, with high input costs that producers are facing, cow efficiency is becoming important for profit minded producers.

Hybrid vigor or heterosis is the level of performance of the crossbred progeny compared to the average of the straightbred parents. It is usually in a positive direction, thus increasing performance, and is highest in progeny of least-related (genetically) parents. For example, heterosis is greater in a cross between Hereford and Brahman than between Hereford and Angus. Heterosis is created by the interaction of genes (actually their products) on the chromosomes in the animal. Progeny inherit one-half of their genes from each parent and these genes are paired on the chromosomes. Hybrid vigor has been recognized as a powerful genetic tool for commercial beef producers for over 60 years.

A calf that is a cross between two purebred parents (of different breeds) is called an F_1 and has the highest level of hybrid vigor. If the F_1 is mated back to one of its parental breeds (called a backcross), then the level of hybrid vigor is theoretically reduced by 50% (the same level of reduction in hybrid vigor if two F_1s of the same genetic makeup are mated). If an F_1 cow is mated to a bull of a third breed, then the F_1 cow will exhibit 100% maternal heterosis and the calf will exhibit 100% direct heterosis. Usually such “terminal sire” crosses are rated among the highest in production efficiency since 100% of both the direct and maternal hybrid vigor is utilized. Actual efficiency will depend on the breeds used, whether or not the crossbred animals are purchased or raised, and how the breeds are combined. More complex mating types including 2- or 3-breed rotations, sire rotations, terminal sire matings, and composite breed formation are described in Texas Adapted Genetic Strategies IV. Breeding Systems that can be accessed at: http://animalscience.tamu.edu/main/academics/beef/pubs.html

The relative production efficiencies for several breeding systems are listed in Table 1, shown as the average percent increase in pounds of calf weaned per cow exposed using only Bos taurus breeds. Crossing Bos taurus and Bos indicus (Brahman) could increase these values by 50 to 100%, depending on the environment.

Table 1. Breeding System Production Efficiencies

System	Percent Advantage
Two breed rotation	16
Three breed rotation	20
Two breed sire rotation	12
Three breed sire rotation	16
Two breed composite	12
Four breed composite	18
Two breed terminal (raise F_1 females)	9
Three bred terminal (raise F_1 females)	20
Three bred terminal (buy F_1 females)	28

Heterosis can be separated into two basic types: direct and maternal. Direct heterosis is the effect of hybrid vigor in the animal on its performance (improved environmental adaptability, longevity, reproduction, growth, and production, including milk production). Maternal heterosis is that which influences the performance of her calf through the environment she provides to that calf, especially the effect of her milk production on her calf's weight. For example, in the production of the F_1 calf, there is only direct heterosis, there is no maternal heterosis since the calf's dam is a purebred cow. If this F_1 is selected as a replacement female then she will exhibit maternal heterosis through better mothering ability that affects the performance of her calf (regardless of its breed makeup).

Heterosis is most beneficial (has the largest effect) on survivability, reproduction, disease resistance, and general fitness, the least effect on carcass traits, and is intermediate for feedyard characteristics. For example, in an F_1 female, heterosis would increase growth rate which would decrease age at puberty, increase actual inherent fertility (over and above the reduction in age at puberty), increase fetal viability (maternally), increase her ability to have a live calf, and increase her milk production. There would also be a positive effect on her calf's weaning weight due to her increased milk production.

There are several breeds in Texas that were founded on the principle of combining specific breeds to form a new breed. These breeds retain some level of heterosis resulting from those initial crosses as well as offering specific breed effects for the commercial cow calf producer which should not be ignored when contemplating a breed to use in a crossbreeding system.

There are few drawbacks from the use of hybrid vigor in commercial cow calf production if a few simple concepts are followed. Select a crossbreeding system that is, efficient, feasible for your level of management, and easily maintained. If you save heifers for breeding, choose breeds that do not vary widely in their mature size and level of milk production. Choose breeds that have productive value as crosses within your cowherd, in your environment, and for your market. But if you are running a terminal cross, where heifers are not saved for breeding, maternal factors are not important in choosing sire breeds.

Crossbreeding should be part of an integrated genetic program designed to optimize production and maximize economic returns.

54th Annual Texas A&M Beef Cattle Short Course

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Cattle-handling, safety and chute-side work will be featured at the Texas A&M Beef Cattle Short Course Aug. 4-6 in College Station.

“The highlight of the Wednesday morning (Aug. 6) cattle demonstrations will be a discussion on low-stress cattle-handling principles and techniques by Curt Pate,” said Dr. Ron Gill, Texas AgriLife Extension Service livestock specialist.

“He’s a well respected stockman from Montana,” Gill said. “He’s a rancher that understands the importance of production efficiency and the economic benefit of handling cattle correctly.”

The short course educational sessions will have a mix of information, addressing current beef industry issues and providing fundamental information on basic cattle management, said Dr. Jason Cleere, AgriLife Extension beef cattle specialist and conference coordinator.

“Due to the recent spike in feed, fuel and fertilizer prices, many of the topics covered will focus on cutting beef cattle production input costs without sacrificing ranch profitability,” Cleere said.

The three-day program, which will be held on the Texas A&M University campus, is sponsored by AgriLife Extension.

“One of the most exciting aspects of the short course each year is the cattleman’s college,” said Dr. Larry Boleman, associate executive vice president for operations at Texas A&M University and conference director.

“There will be 20 different cattleman’s college sessions for participants to select from,” Boleman said. “This year we have more than 70 hours of beef cattle instructional training through seminars, workshops and demonstrations taught by more than 50 different speakers.”

The Wednesday (Aug. 6) morning sessions will provide hands-on demonstrations for participants, featuring cattle handling, chute-side manners, cattle selection, carcass quality, record keeping sessions and an opportunity to receive a private pesticide applicator’s license.

A new feature this year will be a tour of the College of Veterinary Medicine and the Texas Veterinary Medical Diagnostic Laboratory.

Short course registration is $140 per participant (if registered by July 28), and includes admission to the conference, a copy of the short-course proceedings (a 300-page publication), trade show admittance, tickets to the special Aggie prime rib dinner, and additional meals and refreshment breaks.

Attendees can earn seven pesticide continuing education units, 15 veterinary credits and numerous Beef Quality Assurance credits.

For more information or to register, go online at http://beef.tamu.edu, or contact Cleere’s office at 979-845-6931.

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