



FENCE MANUFACTURING

Bill Daugherty's FENCING SEMINAR

Getting the Biggest Bang For Your Buck!

Today we will cover.

1. Planning your Fence
2. Fence Line Preparation and Lay-out
3. Product Quality, Strength, Longevity and Durability
4. Wire
5. Galvanization
6. Treated Wood Posts
7. Tensioning and Trimming
8. Bracing
9. Post Spacing
10. Predator Control

The three costs of fencing!

- Initial cost per mile
- Cost vs potential income or income loss per acre
- Cost of maintenance and replacement

A fence is a management tool, and just like any other tool, you can have a cheap tool that will fail, a good tool that will work most of the time, or the best tool that will work every time, all the time, and never fail you!

What are the real differences in fencing materials?

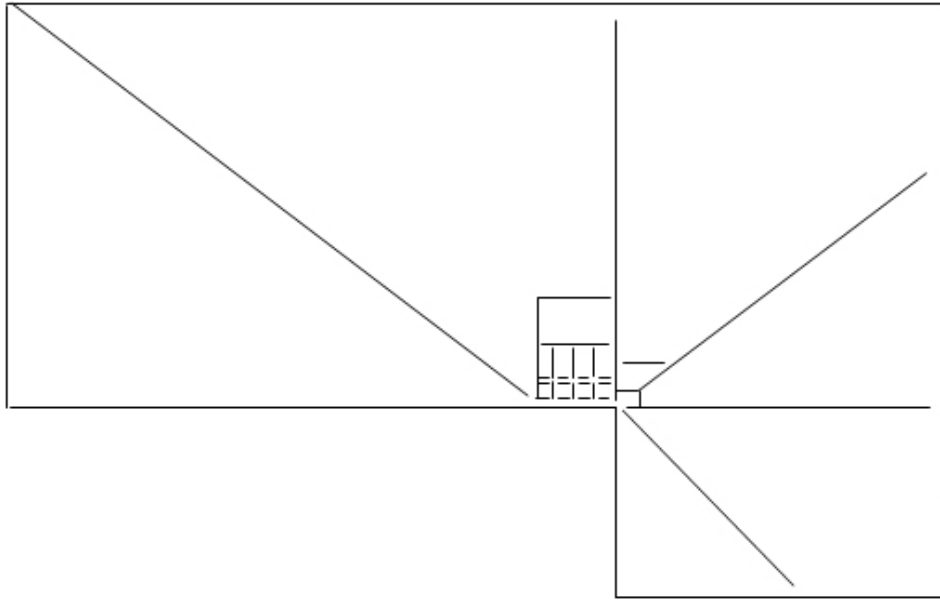
- Do I really know what to ask for?
- How do I know what I'm buying?
- How do I weigh cost vs performance?

THE PLAN

The cheapest thing you can do!



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Do a complete plan—Your wildest dream of your operation!
Disregard cost at this time.

Don't fight "Mother Nature"

Streams, Cliffs, Flood areas, etc. Plan around seasonal high water areas

Consider forage bases, good for breeding areas, marginal for hunting. You will feed! Think about where, when, how, who. Watch turning radiuses and gate widths for equipment.

Facility and breeding area must be located for expansion. What are you going to do if all this works?
Start over?

FENCE LINE PREPARATION AND LAY-OUT



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Provide a cleared clean line.

Ideal is wide enough to drive the fence line.

Construction is quicker and better.

Maintenance is easier.

Take dead trees out before the fence is built.

It is just a matter of time until one falls

A smooth line is best for predator control.

Fence must follow the ground closely

Small ledges are impossible to close

Lay-out Fence for now and later

All fences require a brace regardless of length.

Post centers of 20' to 25' for Hi-Tensile wire and

12' to 16' for low tensile wire.

Post centers are a guide line, not an exact science.

Rigid posts on all hips and dips, and ledges.

A combination of line bosses and tee posts is best.

Future connecting fence lines, place end posts in the fence line now.

Plan gates, consider stock flow and equipment movement.

No gates set perpendicular to fence line. If a gate must be perpendicular. Install a gate foot.

Gates must have close tolerances.

Set gates to swing back against fence.

Gates should not swing through.

Gate over heads should be used in facilities.

Height to accept equipment and gate adjustments.

Slam latches are advisable for working stock.

FENCE LINE PREPARATION AND LAY-OUT



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Avoid water gaps if at all possible!

Fence pasture out.

Fence parallel to creek.

Small gaps build solid, fence over top.

Breakaways unacceptable for game.

Blind, floating gaps with welded frames are best.

Product Quality, Strength, Longevity, and Durability

Products must be strong enough to do the job you want it to do!

Stock size, stock density, stock temperment.

Products need to last as long as you plan for them to.

Size, treatment, and coatings generally determine the life of product, additionally the location will have an effect on life.

Products need to hold up to the wear and the frequency of use you are subjecting them to!

Wind loads, ice and snow, animal pressure, etc.

WIRE



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Hi-Tensile vs Low Tensile

If it's big and shiny, it isn't necessarily good!

Breaking load is a combination of diameter and tensile strength.

Wire ranges include:

17 ga. To 9 ga.

60,000 psi to 210,000 psi tensile strength

Example:

12.5 ga. Low tensile breaks at 380 lbs. to 460 lbs.

9 ga. Low tensile breaks at 960 lbs. To 1030 lbs.

12.5 Hi-Tensile breaks at 1080 lbs. To 1870 lbs.

Look closely at the labels for tensile strengths for both the line wires and the stay wires. Ask what the breaking strength is. Call the Manufacturer!

Wire memory

Hi-Tensile wire has excellent memory, like a spring, and has an elongation of .1 of 1%.

Low Tensile wire is soft and has very little memory, and has an elongation of 11%.

The depth of the crimp in the line wires determines the fences ability to follow terrain and absorb impact.

GALVANIZATION



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The amount of zinc on the wire directly controls the life of the fence in any given area of the country!

A.S.T.M. Classification A 116

Oz. Of zinc per square foot!

Commercial or merchants grade less than .3 oz.

Class 1 .3 oz./sq. ft.

Class 3 .8 oz./sq. ft.

Wiping process determines the amount of zinc left on the wire!

The pad wipe processes wipes off a heavy amount of zinc and a minimum of zinc is left. Generally less than .3 oz. It is bright, shiny and smooth but won't last long.

Other processes leave a rougher finish, but there is considerable more zinc left to protect the wire.

Appearances can be deceiving!!!!

TREATED WOOD POSTS



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All treated posts aren't the same!

Green - What is it? C.C.A. Wolmanized Tantilized

If it's green is it good? Not Necessarily!!!

Different treatments for different purposes.

C.C.A.

.28% .40% .60% .80%

Creosote

2 lbs. 4 lbs. 6 lbs. 8 lbs.

Penta Treated

Submerged 24 hrs.

Pressure treated same as C.C.A.

Soil PH and moisture will effect the life of treated posts.

Posts are graded like lumber No.1, No.2, No.3.

Here is where big differences show up in prices!

Don't use milled lumber for fence posts.

Don't cut into treated posts!

TENSIONING AND TRIMMING



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Tightening not stretching is the correct way to tension a fence.

Tension crimps are put into the fence live wires for three reasons.

1. Maintain tension on the fence and allow for temperature changes.
2. To allow the fence to follow terrain.
3. To absorb impact and stock pressure.

Remember the deeper the crimp and the stiffer the wire the better the fence will hold up and stay tight.

First is to tie the fence off square to the brace post and splice evenly.

An end strain or a center strain can be used.

We recommend a center strain because the tie off on both ends is much easier and the ground resistance is cut in half.

Tighten the fence and stand it up. Stop Here.

If you have dips and hips in the fence line now is the time to test trim it. It needs to be hung up on the hips and pulled down in the dips before the final tie or splice is made. Dips, especially take a considerable amount of fence to fill in.

When using splicing sleeves make sure they will Exceed the breaking strength of the wire.

TENSIONING AND TRIMMING



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Make the final trim on hips and dips.

Staple and or clip the rest of the fence.

Always trim from the ground up. This will ensure a close trim to the ground.

When stapling never hard staple the wire to the post.

The wire must be allowed to move or it will weaken the fence and break posts upon impact. Always use class 3 galvanized tee post clips and staples.

We recommend that a barbed staple be used, as they will not back out of a post.

If a two panel system is being used.

Class 3 galvanized hog rings should be used on two foot intervals, and the top panel should overlap the bottom panel by at least six inches.

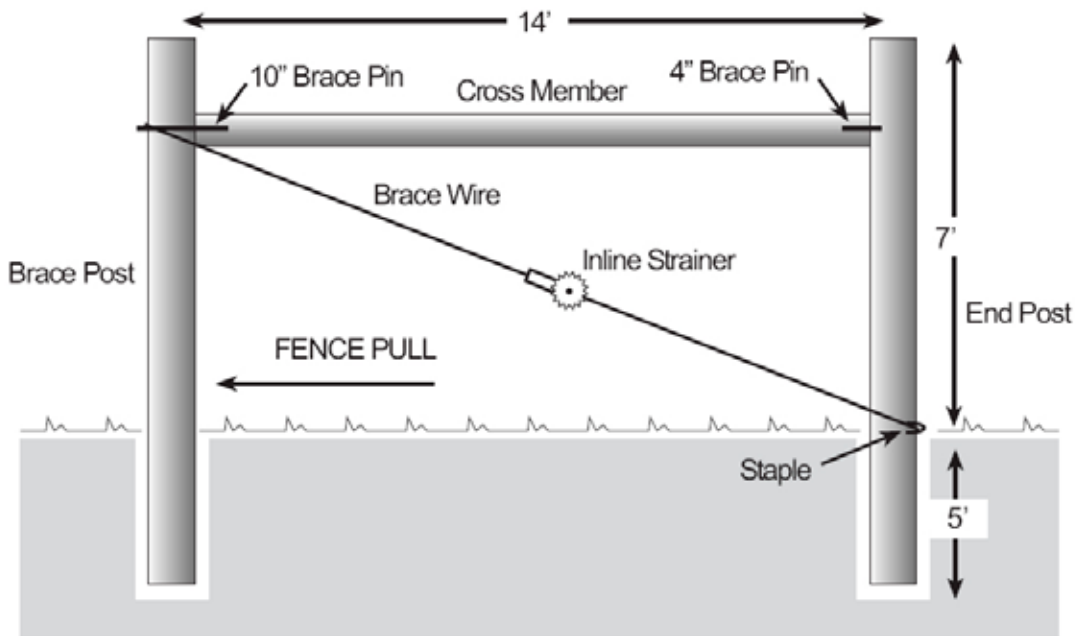
BRACING



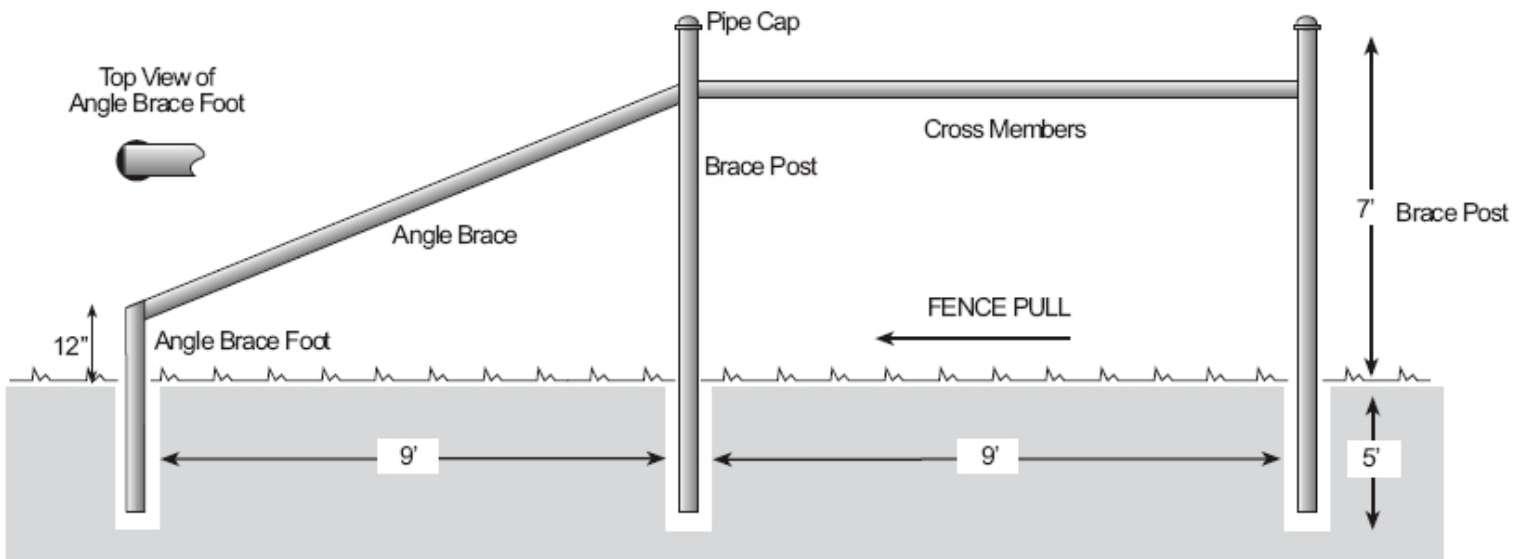
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Foundation of the fence! No Brace = No Fence!

How do they work?



**Braces must be twice the height of the fence!
2.5 times is ideal!**



POST SPACING



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Post placement is based on an average post center!

Based on a 20' average, in rough going you will probably be at 16' to 20', and on smooth ground you will be at 20' to 25'.

A rigid post must be placed at all breaks in the terrain.

On the edges of all crowns, in the bottoms of all dips, and at all ledges. Placement is considerably easier if a guide wire is used. It can be stepped on to indicate the best place to set the post to follow the contour of the ground.

End posts for future braces should be placed in the fence line to allow for easy brace building as you expand.

The difference in cost of a line boss compared to a brace post is cheap compared to the difficulty in placing a brace post in the fence line at a later date.

Braces of less than 15 degree angle will fail. The brace must be perpendicular to the fence line.

Tee posts cannot be used for any deflection in the fence line, only straight lines.

If shade cloth is going to be used all posts must be rigid!

PREDATOR PROTECTION



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Fence Plan

- Avoid rough terrain
- Avoid water gaps
- Minimize exterior gates

Fence line preparation.

- Smooth as possible
- Long straight pulls
- No snags or stumps

Frame up shallow water gaps or low volumn gaps

- Take fence across top flat
- use welded 4"x 4" stock panels minimum

Use 4 pt. X 3" class 3 barbed wire on the ground as a deterrent.

26" apron fence is the best application to stop Digging.

Wind row the fence when finished.

All gates must have a hard surface under them and a minimum clearance of 3" to the ground and brace posts.

Two panel systems need barbed wire applied to the top two boxes to prevent climbing through.

IN SUMMARY



FENCE MANUFACTURING

Have a Total Plan

Don't Fight "Mother Nature"

Have a Well Prepared Fence Line

Use Quality Materials

Build Good Braces

Post Centers are a Guideline

Post Hips, Dips, Future Braces

Avoid water gaps

Build the very best fence you can AFFORD!