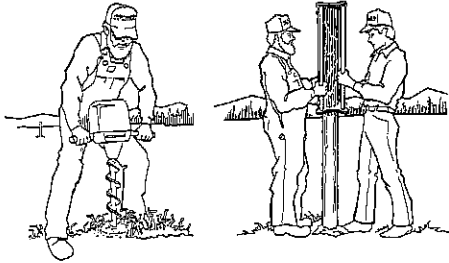


HOW TO DESIGN & BUILD

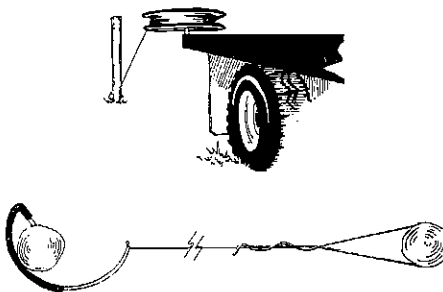
The SPIDER permanent electric fence concept is so-named because, like the spider's web, it has remarkable resilient strength. The ability of the SPIDER fence to "flex rather than break" permits the use of very compact, lightweight, and economical components. More importantly, it allows the SPIDER fence to be used in some very practical and unique ways. The concept, which has been adapted to U.S. conditions from its origins in New Zealand, focuses on two fundamental criteria: Profitable and enjoyable pastoral farming.

POSITIONING END & ANGLE POSTS



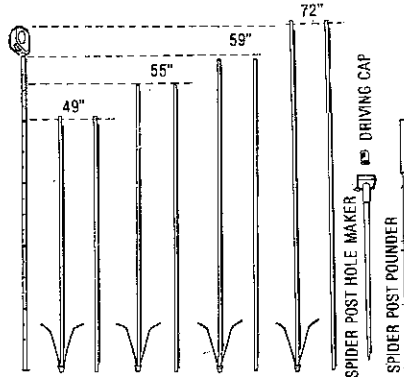
- * Start building your SPIDER fence by positioning wooden posts at the ends, angles and sharp rises on the line (Specifications in TABLE 1).
- * Both angle and end posts should lean slightly away from the direction of pull.
- * Auger a small pilot hole to full post depth.
- * You can rent, or buy the two-man post pounder to drive the wooden posts into an undersized hole.
- * A final option is to tamp the posts into an oversized hole. Unless this is done with great care the post will pull. Tightly compact the dry concrete mix or soil by tamping, in small layers, from the bottom of the hole to the top.

THE GUIDE WIRE



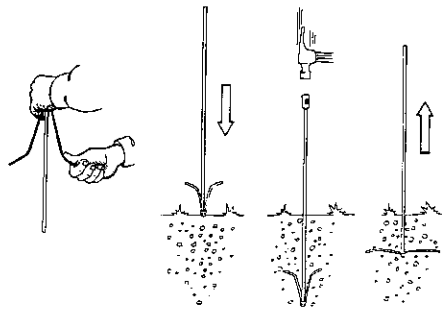
- * Pay out the bottom wire so that it can be used as a guide for positioning the fiberglass line-posts.
- * If possible pay out the wire from a vehicle-mounted spinning JENNY, holding the end by a G-SPRING hung around the end post.
- * Cut the guide wire leaving a 5 ft. surplus beyond the end post and thread on six inches of SPIDER INSULTUBE for each wooden angle-post (twelve inches for a TIE-BACK GATE).
- * Keep the guide wire taut while posting by using a slip knot as shown.

INTERMEDIATE POST POSITIONING



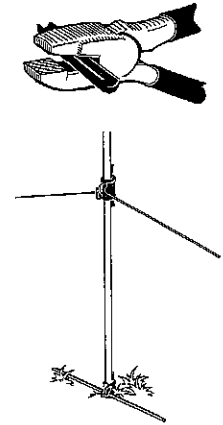
- * Check TABLE 1 for maximum fiberglass post spacings. Accurate positioning of posts with respect to alignment and topography is the mark of the expert SPIDER fence builder.
- * Drive the post with the SPIDER POST POUNDER which will bottom out when the standard height is reached.
- * All line posts in a SPIDER fence should be perpendicular to the ground surface i.e. not necessarily vertical.
- * Attach the guide wire to the posts so that the bottom wire spacing can be checked with a tape measure to ensure that it is kept strictly within the tolerance band (Refer TABLE 2).
- * If the ground is extremely hard or rocky perform a pilot hole for the post by driving the SPIDER HOLE MAKER with a sledge hammer (remove it by tapping it under the head).

THE FOOTED POST



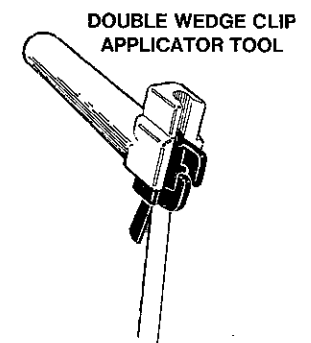
- * The SPIDER FOOTED POST ("FOOT") must be used wherever there is upward pull.
- * Bend the wire barbs sharply near the tip then away at the base.
- * Drive the post as far as the post pounder will allow and then continue using the DRIVING CAP and hammer until about twelve inches below specified post-depth.
- * The driving depth of the footed post varies with soil type but you will soon learn the best depth with practice.
- * Take care to pull back the "foot" with the hands braced against the knees so the pull is on the lower legs and not the back.

COMPRESSION ASSEMBLIES



- * If the ground is very soft and the wires are pulling down sharply on the post make a compression assembly in the following steps:
 - * Cut a wedge in two with pliers as shown.
 - * Slip the wedge body of the clip over the post to ground level.
 - * Slide a compression rod through the clip aperture.
 - * Lock the assembly with the "half-wedge".

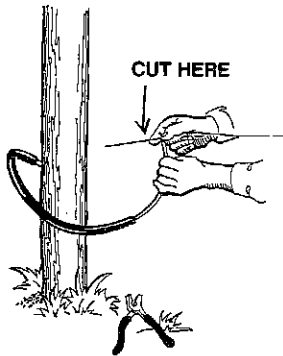
CLIPPING



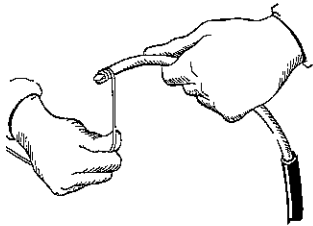
- * Use the SPIDER APPLICATOR TOOL to position the double wedge clips.
- * Note that the aim is to keep bottom wire height within the specified range and actual height on the post will relate to the height of the wire between the posts so that it will vary slightly.
- * The Double Wedge Clips self-lock so leave them in the middle position.
- * Slide the INSULTUBES, if required, down the line while clipping and carefully staple to the angle posts.

SPIDER ELECTRIC FENCES

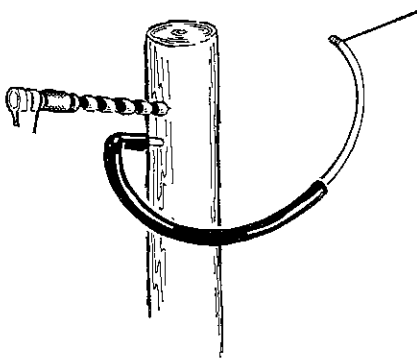
TENSIONING WIRES WITH THE G-SPRING - * Start with the end post where the wires have been tied off (not fixed to a G-Spring) and go through the following steps with each wire.



* Hold the G-Spring against the post while pulling up the wire with the other hand to estimate a suitable point to cut it (pull the wire to about 20 pound tension and cut about one inch past the tip of the "G").



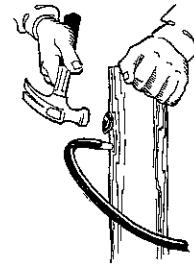
* Feed the end of the wire into the hole in the G-SPRING and make two or three tight turns around its tip.



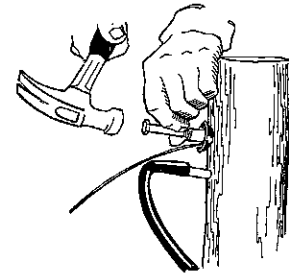
* Pull the "G" back and rest its probe on the end post, at the height for that wire, then make further turns around the "G", as necessary, to bring the wire to the recommended 25 pounds to 30 pounds tension.

* Mark the wire height on the end post, lower the "G" about two inches and rest it on the post with the probe slightly left of center and with the "G" slinging around the right hand side of the end post.

* Drill a three quarter inch diameter by one and a half inch hole slightly left of center of the post at the marked height. Align the hole exactly parallel to the probe of the "G".

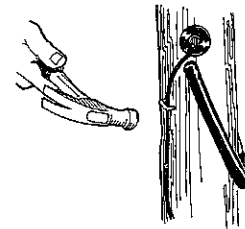


* Press the PLUG into the hole tapping it home with a hammer if necessary.

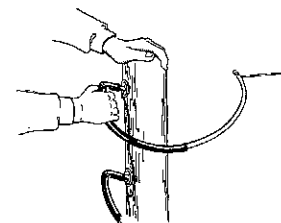


*Cut the INSULTUBE into suitable (generous) lengths, load it with SPIDER Wire allowing at least 1" at each end to take the power around to each plug. Make sure the insultube is positioned to allow water to run out of the ends.

*Using a three eighths bolt as a punch, drive the INSERT into the PLUG so that it secures the wire in the recess moulded into the plug.

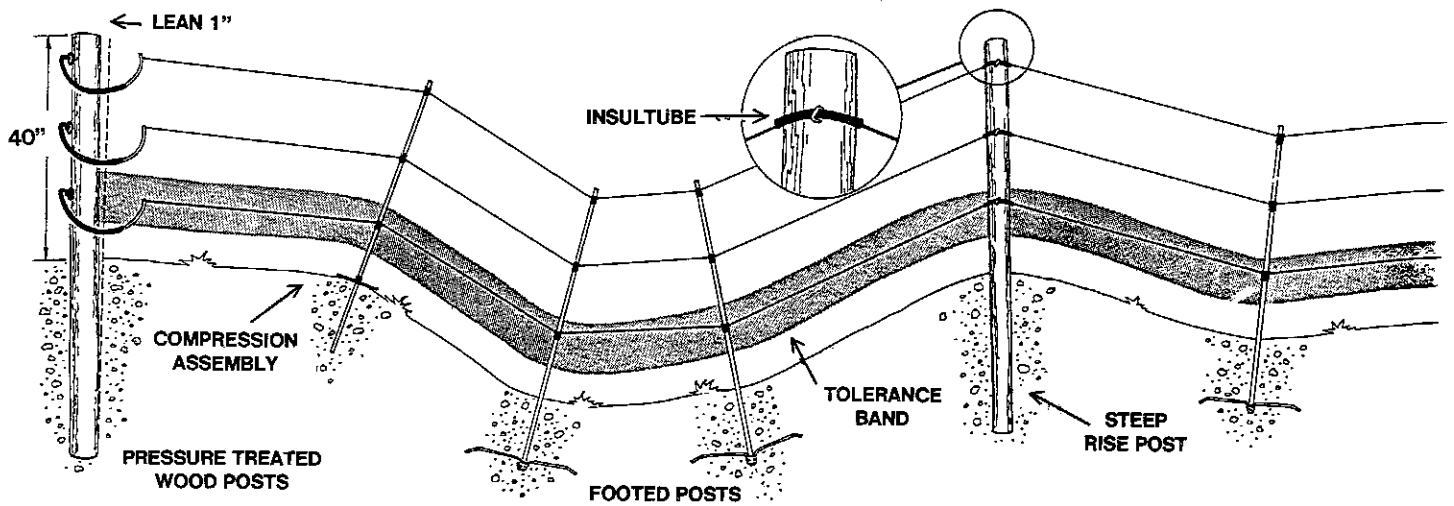


*Staple down the insultube within 1" of the plug so that it holds neatly against the post. Take care not to pinch the insultube. Then place the "G" spring probe into the insert.

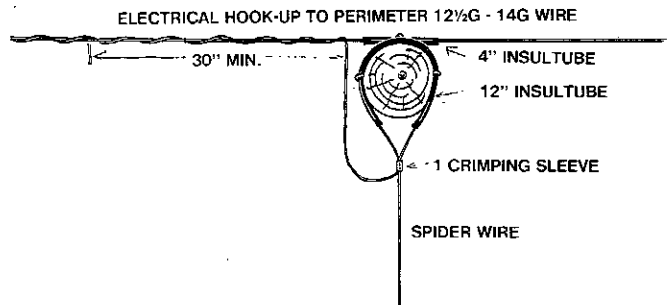
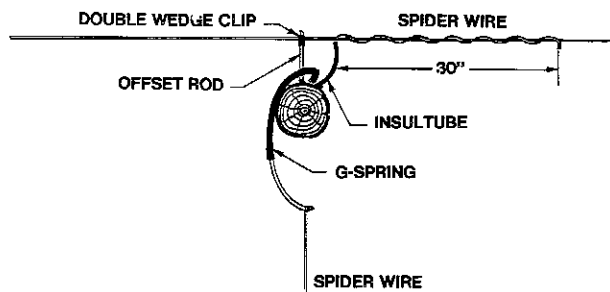


*Allow for an extra wire in one plug to attach to the power source using special SPIDER crimping sleeves or by an equivalent, electrically-sound connection.

TOLERANCE BAND

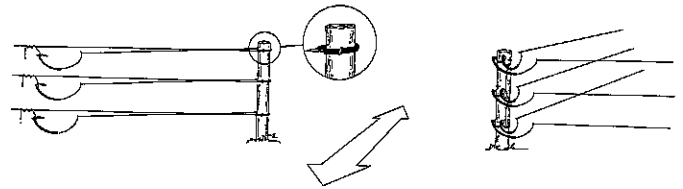
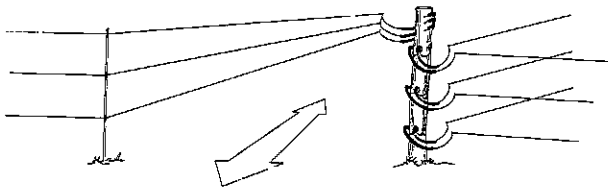


ELECTRICAL HOOK UP



SPIDER "GATES":

The Spider G-Spring offers access in many ways. It can be used to form a somewhat conventional gate by incorporating a very short span (60' or less) of Spider fence as a "gate span", or costs can be saved by incorporating an "integral gate" in one of the ways shown below. G-Spring gates are not seen as a total substitute for all gate situations, such as main thoroughfares, where a more conventional gate may be required.

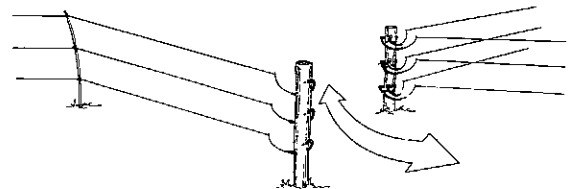
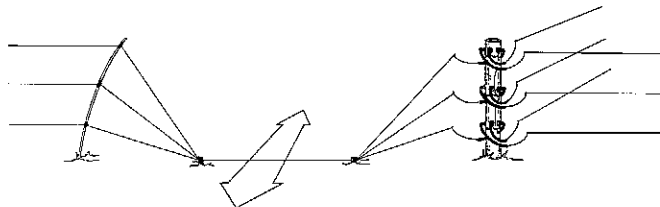


OVERHEAD GATE:

Small animals will soon learn to travel under a section of fence which has been pinned high off the ground. A taller end post with extra height is handy for this and a stake can be used to wedge up the wires further away from the end post; or you can move the Double Wedge Clip up the post with the wire attached using the applicator tool. - Be careful if the fence is on!

TIE BACK GATE:

An extra post in the fence line out from the end post can be used to hold the tension when the "G-Spring" is placed in the tie back hook. Use 12" of insultube and staple as shown.

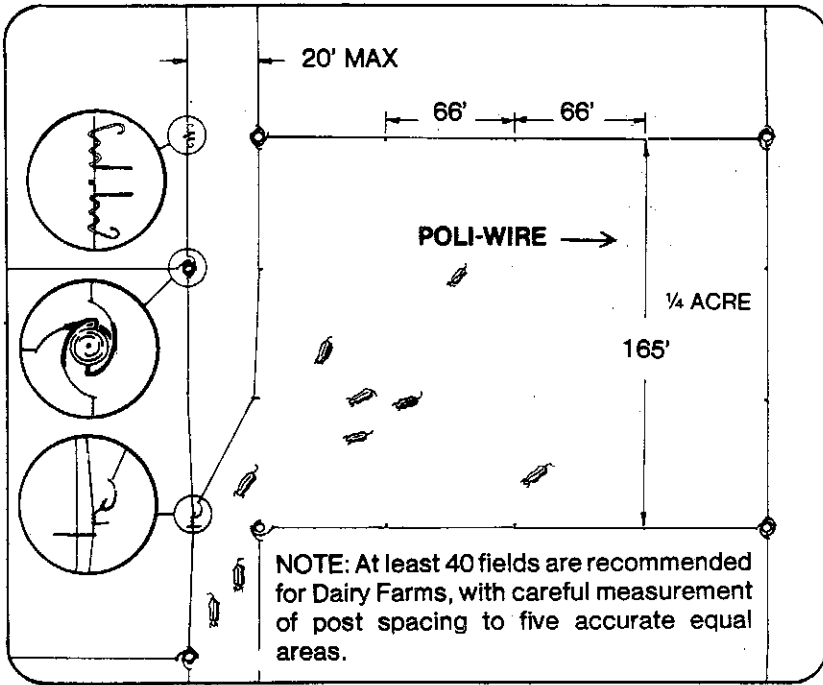


PIN GATE:

A notched stake can be used to provide a means of holding down the wires to allow a vehicle or trained livestock to cross. The wires are clipped into notches by pressing them down with rubber-soled boots. This system can be used anywhere along the fence.

SWING GATE:

An extra post can be used to maintain tension while the wires are swung away from the end post. If the paddocks are NOT opening into a lane way a very efficient wing is created to assist in the movement of livestock.

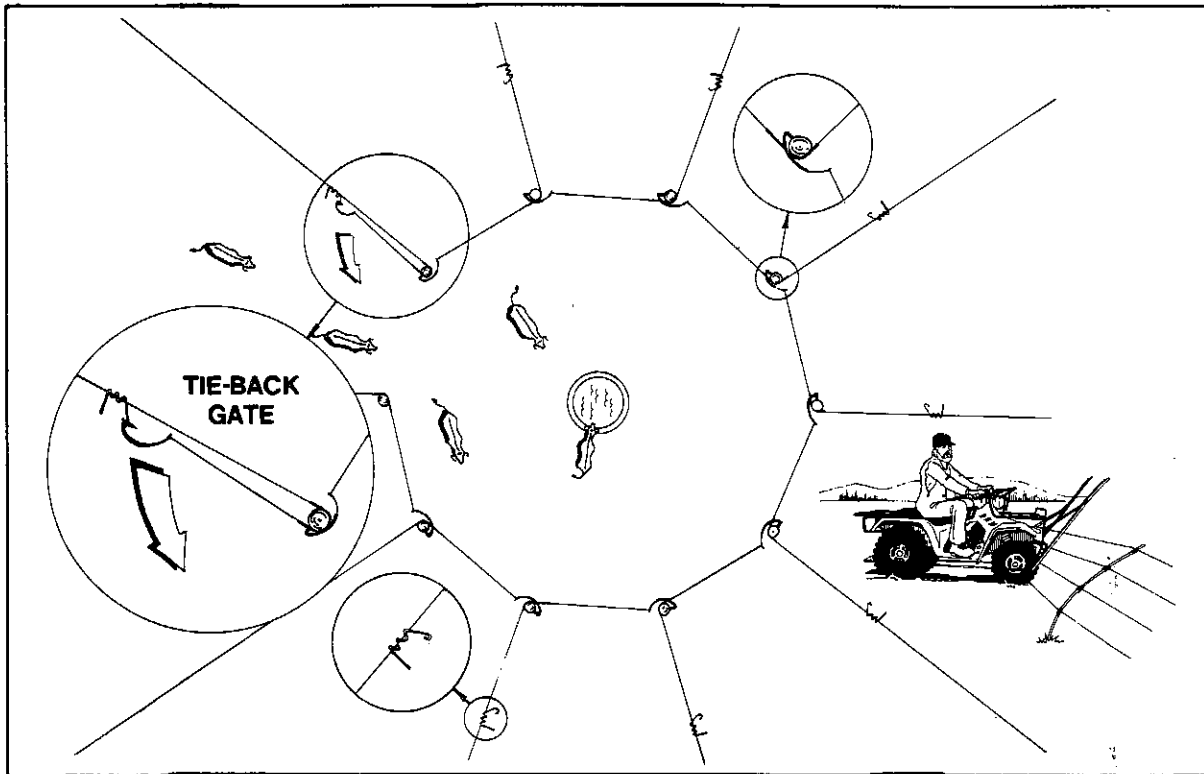


LANE-WAY SYSTEM

This system uses "G"-Gates into a central lane way using tie-back hooks to keep the wire taut when the "Gate" is open. The "G"-Gate provides a wide entrance, a diagonal lead into the field and blocks off the lane-way. Routing can be made from field to field or field to corral or from field to a water trough although access to water in each field is recommended.

SPOKE SYSTEM

Does minimize the amount of fence required and allows the use of a pressurized central waterer. Aim to sub-divide into 20 equal sized paddocks for a full circle area. Gate width should be 12' to 20' and the center area from 140' to 240'. Keep mineral feeders away from the central hub.



NO BRACING REQUIRED					MAXIMUM LINE-POST SPACING
NUMBER OF WIRES	END POST LENGTH	END POST DIAMETER	ANGLE POST LENGTH	ANGLE POST DIAMETER	
1	6'	3"	6'	3"	75'
2	6.5'	3.5"	6.5'	3"	65'
3	7'	4"	6.5'	3"	45'
4	7.5'	4.5"	7'	4"	40'
5	9'	5"	7.5'	4"	35'

	NUMBER OF WIRES	TOLERANCE BAND		
		MINIMUM BOTTOM WIRE HEIGHT	MAXIMUM BOTTOM WIRE HEIGHT	MINIMUM TOP WIRE HEIGHT
DAIRY FENCE	1	28"	36"	-
CATTLE FENCE	2	15"	24"	28"
HOG FENCE	2	6"	12"	18"
SHEEP FENCE	3	8"	14"	26"
GOAT FENCE	4	4"	12"	28"
DEER FENCE	5	12"	18"	48"

NOTE: There are no intermediate wire spacings given: Choose spacings that will divide up the space between the top and bottom wires with slightly smaller gaps between the lower wires. The above recommendations relate to a well-constructed and well energized SPIDER FENCE in moist soil conditions. Ground wires will need to be added to the fence in arid areas. Try thinking of the wire heights in terms of a tolerance band within which the wire must always fall.

QUESTIONS AND ANSWERS

HOW FAR APART CAN I HAVE THE G-SPRINGS IN A FENCE?
That depends on the terrain. On flat ground up to a mile, on the most rugged terrain down as low as 800 feet.

DO I NEED G-SPRINGS AT BOTH ENDS OF THE FENCE?

Not necessarily but we strongly recommend it. Deceptively, a short fence has greater need for "G's" at both ends than a longer one. That's because the longer fence has more elasticity from the wire itself. "G's" at both ends are handy for access and one "G", alone, may not provide sufficient elasticity for the wire to cope with wandering deer.

HOW FAR APART DO I PUT THE SPIDER POSTS?

Check TABLE 1 but remember these are maximums and some posts will be much closer to maintain correct wire height on uneven terrain.

DO I NEED ANY HEAVIER POSTS IN THE LINE?

Only the wooden angle posts (changes of direction) in the fence and at very sharp rise points.

IS THE SIXTEEN GAUGE ADEQUATE AS AN ELECTRICAL CONDUCTOR?

Yes, in a subdivision fence which is shorter than three miles and which is not serving as the main arterial leadout for a larger network of fences. Most subdivisional fences link up in a network so the power is fed to most points via several different fences. Where this is so, the recommended maximum may be exceeded. Never use a single sixteen gauge wire as a single lead-out wire.

WHAT LOAD WILL THE SPIDER FOOTED POST TAKE?

Either the 49", 55", or 59" SPIDER FOOTS are adequate for most soil types when used in a SPIDER FENCE which has much lower tensions than a physical, non-electric fence. If there is no turf or if the soil is very loose then it may be necessary to substitute a wooden posts or tie down the fiberglass post to a secondary anchor.

DO I HAVE TO USE THE SPECIAL SPIDER JENNY?

No, most conventional spinning jennys can easily be adapted to take the smaller coil. The SPIDER JENNY is being developed for winding up fence wires in the semi-permanent fence situation.

WHAT SHOULD THE WIRE SPACES BE IN THE SPIDER FENCE?

Consult TABLE 2. The only really critical wire spacing in a SPIDER FENCE is the bottom wire in a sheep, goat, or hog fence.

WHAT SORT OF ELECTRIC FENCE CONTROLLER WORKS BEST WITH THE SPIDER FENCE?

A powerful one. The SPIDER FENCE is not a physical barrier at all, so voltage levels must always be good. Choose a charger which is recommended for a much longer length of fence than yours. A fencer that operates at 5000 volts to 8000 volts is best but the most important consideration is the energy output or joule-rating. Joule-ratings vary from under 1 joule to over 20 joules. Sheep fences, fences which pass through undergrowth, and extensive fence networks all need a high-energy controller.

HANDY HINTS:

* An alternative to using the bottom wire in a fence as the guide-wire is to use polywire or baling twine. The better stretch and lighter weight makes for easier estimation of bottom wire height.

* The fiberglass posts make excellent markers for plotting out fence lines. Two people, at least one with binoculars, can quickly make a skeleton lay-out where the position of any line post can be found by sighting off the "sighter posts".

* The fiberglass line posts can be marked for wire height with a felt-tip pen by laying out the bundle on the ground and marking across them using a straight edge.

* Try to arrange it so that the sun is always behind you when sighting the skeleton layout and when line posting.

* If an extensive rotational grazing layout is needed consider using professional help from your local Soil Conservation District, Agricultural Extension Service or KIWI FENCE SYSTEMS, INC. for further information.

* If the terrain is not too difficult and the grass is not too long a golf bag makes a good post and tool cart.

* To remove or insert the tensioned fence wire from the DOUBLE WEDGE CLIP bend the post over sideways so that you don't have to kink the wire.

* Most vehicles can be adapted to drive over the SPIDER FENCE. Bars are needed to prevent the wires catching on the undercarriage and as deflectors to take the wire down. The deflector bars needed to be at an angle of about thirty degrees to the ground and either very smooth or plastic coated.

DO'S AND DON'TS

DO take care to align posts carefully. The SPIDER FENCE is very easy to erect and there can be a temptation to "slap it together" but careful post positioning will be rewarded by a much superior looking fence.

DON'T compromise the fence by using cheaper but inferior third party products. The SPIDER FENCE is a very economical but high quality fence. It achieves economy by superior design not by compromising material, quality and strength.

DO monitor voltage frequently. The SPIDER FENCE is a totally electric fence and it will only work well where voltages are maintained above acceptable minimums. 3500 volts is the minimum acceptable level.

DON'T use more material than necessary. Less is more with SPIDER. Most fence functions work better with a "sparser" fence, but, DON'T overdo this either. Our recommendations specify the minimum amounts of material that we consider will make a successful fence over the long term.

DO try out unusual techniques such as driving over the fence. It may seem strange but once you get accustomed to doing it you'll agree that conventional gates are for dinosaurs!

DON'T wedge the DOUBLE WEDGE CLIP up tight when building the fence. It will have more strength if left to self-lock under heavy load.