

## PRICKLY PEAR WORK AT THE R. W. WILLIAMS RANCH IN DIMMIT COUNTY, TEXAS, IN THE 1960'S

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### INTRODUCTION

This paper is dedicated to Mr. Leroy P. Williams, who is my stepfather, and to Dr. Jim Dodd, Texas A&M University, who taught me in graduate school and who conducted research with prickly pear on the R.W. Williams Ranch near Carrizo Springs, Dimmit County, Texas, during the 1960's. The paper is based upon recent interviews with these gentlemen - and is tempered with personal experience growing upon the ranch during the drought of the 1950's. The prickly pear cactus referred to in this paper is basically Opuntia lindheimeri now O. engelmannii since 1988. The R.W. Williams Ranch was operated by Mr. Leroy P. Williams at that time.

### HISTORY & PERSPECTIVE

In the early part of the century, pressurized, backpack, white gasoline pear burners were used to singe the spines from prickly pear so that cattle could eat it. Kerosene (coal oil) became available in the 1930's and was used in similar rigs. In the 1950's, Williams said he bought butane gas delivered from Lubbock by the tank truck load, and stored it on the ranch. It was cheap in those days, about seven cents a gallon.

Once compressed gas, later to be called LP gas was available, pear burner rigs evolved to include larger tanks, commonly with 100 gallon capacity, trailer or pickup truck mounted, with several hoses (often four) going out to individual handheld burners. Williams estimated that one man could feed about 200 head a day with one of these rigs, but envisioned that in a level, properly prepared field of row planted prickly pear, one man using a hydraulically operated, multiple burner rig should be able to feed 2,000 head a day.

In Mr. Williams words, "Some folks burned pear during tough times. We had always burned pear as part of our regular feeding program, but during the drought of the 1950's (It started in Dimmit county in 1950), we burned it too frequently and killed most of our pear out on the ranch. Pear can generally be burned every four years in our area with no problem and will usually return just fine, but we had no choice but to burn more frequently than that during the drought".

I was in my teens then, and remember the drought only too well. It probably had considerable influence in my wanting to pursue a college degree to try to find another way to make a living. I remember one ranch with thousands of acres of improved pasture, a sea of Blue Panic Grass - during good times, that was reduced to a bare, blowing desert, reminiscent of dust bowl days. And there was no prickly pear left to burn for cattle on that ranch.

I can recall my stepdad saying "Son, your college (then Texas A&M College) doesn't know much about prickly pear." I responded somewhat defensively with "What do you mean?" He said, "They have a few pamphlets on prickly pear as a problem, but don't know much about how it responds to fertilizer, insect problems, disease and so forth." He was right. He visited the King Ranch and talked with a number of people regarding prickly pear plantings before embarking on his own plans.

It was during this time that barrel choppers, cableing, chaining, Ferguson saws and other devices were being tested for brush control; particularly for the control of mesquite, acacias, and whitebrush. When a barrel chopper rolled across a prickly pear flat, behind a bulldozer it would cut the prickly pear into thousands of pieces and a large number of those pieces grew into whole new prickly pear plants creating pear flats that were almost impenetrable on horseback or on foot.

About that time, Dr. Jim Dodd was hired into the Range & Forestry Department at Texas A&M. One of his responsibilities was to learn more about prickly pear cactus. Hopefully, to help Southwest Texas landowners manage it better. Dodd set up test plots on the Williams Ranch, and became a regular visitor checking his plots and observing the planted areas as they developed.

When I returned to graduate school at Texas A&M, I wanted to study prickly pear, but funds were primarily available to work with cotton physiology and biochemistry, so "King Cotton" helped me get my doctorate - but I did manage to squeeze a couple of weeds into the research project too.

Later while I was on staff in the Agronomy and Biochemistry Departments at Mississippi State University, Dr. Boris Stojanovic (Who became Director of Mississippi State's new Enology Laboratory) spurred my interest in the art of wine making and while he pursued the use of Mississippi grapes, I worked on "Vino de Tune," from Southwest Texas prickly pear apples. It resulted in a beautiful, magenta wine. I decided that "Vino de Nopal" would be a better name to avoid having the public think we had come up with yet another fish byproduct!



## PREPARATION OF THE LAND FOR PLANTING

Williams decided to plant his prickly pear in a number of small fields, 20 - 40 acres in size, so cattle would be dispersed better throughout the pastures. He felt it was important to avoid having cattle bunch up in one place and stay there where they could damage soil and vegetation excessively, and wouldn't do as well either. He located each field near water so that cattle wouldn't have far to travel. Williams ultimately planted about 350 acres to prickly pear.

The areas were root plowed and raked to smooth the surface. Robust, healthy prickly pear was selected from two locations in Dimmit County. Individual pads were cut and stacked in piles to allow the wounds to callus over and to allow the pads to dry out a bit. Williams has said that fresh prickly pear pads are too heavy to handle conveniently and probably wouldn't survive as well either. He felt it was better to reduce the water content of the pads prior to planting them. The pads were then hauled to the sites in a trailer (wagon) for planting.

Working closely with Mr. Joe Ayers, a local welder and metal worker, Williams designed and built a prickly pear planter to be pulled behind a tractor and to have a wagon attached to its rear from which pear pads would be moved forward to the planter.

No fertilizer was applied either prior to or after planting, except experimentally by Dodd.

## PLANTING TECHNIQUE

The fields were planted in 16 foot rows with pads inserted 4 - 6 feet apart down the rows (Fig. 1). The reason for 16 foot rows was so that the plants could grow and spread, but hopefully still have about an 8 foot passage between them for a jeep or tractor to drive during burning.

A metal blade mounted on one of the wheels made a "twang" each time a pad was to be dropped down the chute from the planting table above. A disk on each side of the chute threw soil back around each pad as it dropped to the soil surface. A depth wheel held part of the weight of the planter and the 3 - point hitch held the rest. Roughly half the pad went into the soil and half stuck out.

Two workers operated the planter; one seated on the left side of its planting table and one on the right. In all, five men were required for the planting operation; a tractor driver, the two planter operators, another man in the trailer moving pads forward to the planting table and two more hauling pear pads to the site and loading them onto the planting trailer. Most wore gloves and goggles to help protect them from spines.

The prickly pear was planted in the heat of the summer during July and August of 1964-65.

**Fig. 1. Prickly pear pads just planted. Worker is standing in planter wagon shoveling pads forward to planter table. Williams is on the left directing the operation.**

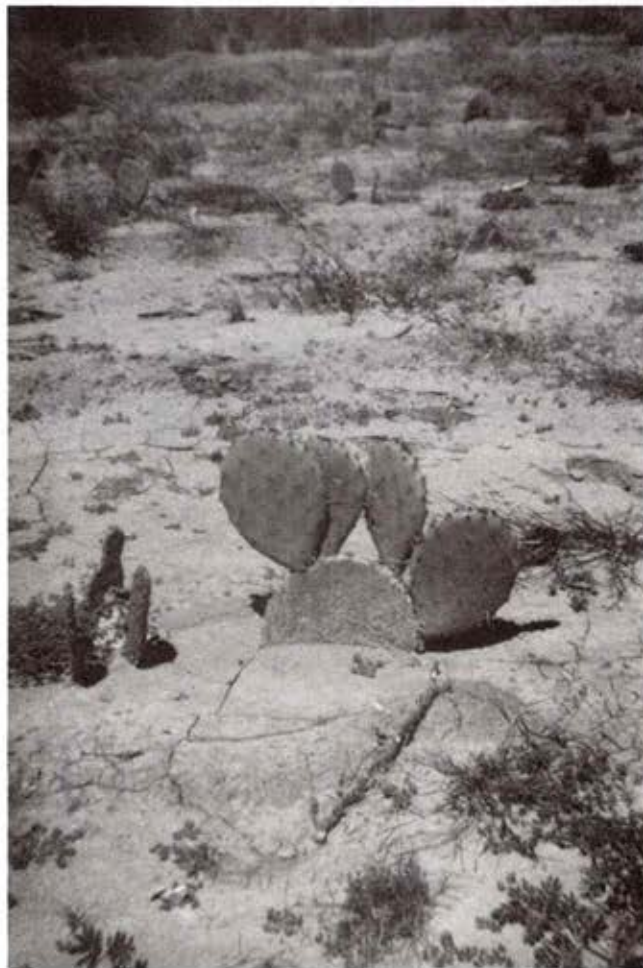


## RESULTS

The prickly pear grew rapidly. Considerable growth had occurred by the end of the year (Fig. 2) following late summer planting. According to Mr. Williams, it was burned the first time four years after planting. The prickly pear was burned about four times during the period from 1964 - 1981. No significant problems with wildlife or livestock disturbing or damaging the plantings occurred during the growth of the prickly pear.

The initial brush control wasn't adequate and it started returning rapidly. This defeated plans to build and use the hydraulic burner system that Mr. Williams had designed. The brush would interfere with its use. As a result, he returned to burning pear with standard four hose rigs operated by a crew of four.

**Fig. 2.** This was typical of the way planted pads appeared in February, 1965, following planting in July-August, 1964. Four new pads have grown from the planted original one.





Dr. Dodd made several significant observations:

There was little response to experimental fertilizer applications to the prickly pear under the moisture conditions present. Growth response was triggered more by moisture availability and temperature.

True roots reached down 3-4 feet into the soil during the first two years on many plants. Shallow horizontal roots appeared to be rhizomatous with nodes and internodes. Under certain conditions, i.e. when a plant is under stress, etc., small plants may develop from the rhizomes within 18 inches or so of the mother plant.

If pads were planted upside down (but-end up), growth would be delayed for about two weeks while the plant attempted to adapt.

Growth was practically exponential; pads planted in August would have considerable growth before the end of the year. Four new pads might develop from it and 3-4 more from those the next season, resulting in a situation that might cause the developing "limb" to break and bend till it touched the ground and rooted again.

#### **CURRENT STATUS & CONCLUSIONS**

The prickly pear fields still exist, but brush has largely reclaimed them (Fig. 3). They haven't been burned and used for forage since 1981.

Mr. Williams has made the following recommendations regarding the planting of prickly pear:

Do a thorough job of controlling the brush before planting. Its rapid return prevented the use of a hydraulic burner system as originally proposed.

Stay away from shallow soils on hilltops and away from sandy soils. Prickly pear does best on well (surface) drained clay to clay loam sites.

Control competition around the prickly pear to prevent brush from returning and because the cactus tends to do better when there is less vegetation around it.

Mr. Williams says that current economics may not "fit" when it comes to using prickly pear as forage today and that your particular situation should be considered carefully. He did say that the prickly pear plantings worked out well for him and that he wished he had planted 700 acres instead of 350 acres.

**Fig. 3. Photo taken of Prickly pear field in July, 1990, over 25 years after planting.**



#### **LITERATURE CITED**

- Dodd, J.D. 1990. Personal communications.  
Williams, L.P. 1990. Personal communications.