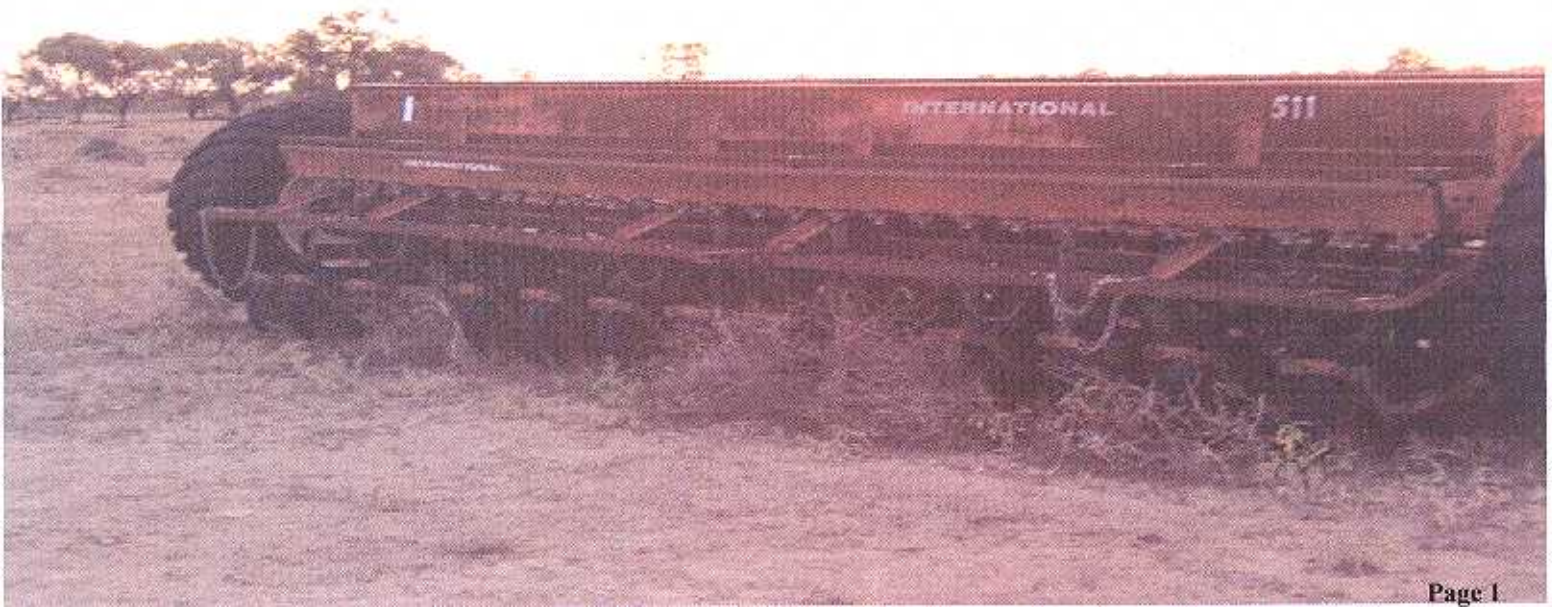
WEED REPORT

Cathead/Caltrop
(*Tribulus Terrestris*)

Cameron Beach
YEAR 9
Saint Ignatius College Riverview



INDENTIFIED AREA WITH CALTROP (Tribulus Terrestris)

Bealbah

Warren NSW

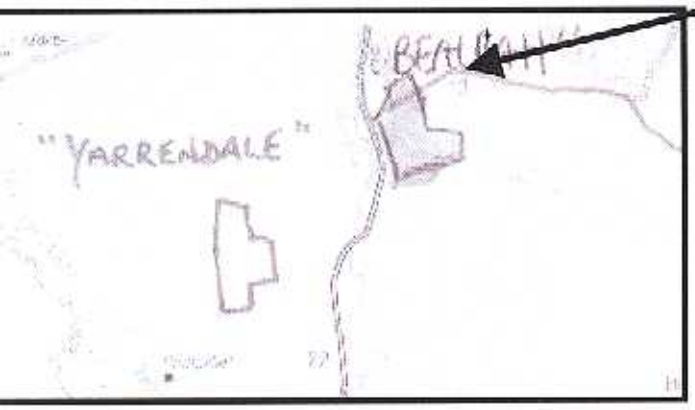
The area identified is on our family property, **'Bealbah'** located in the Warren district on the central west plains of New South Wales. It is 45km north of Warren on the Quambone Road. It is a mixed farming enterprise with sheep, wheat & irrigation.

During the last six years of drought, species suited to these conditions have flourished, such as galvanized burr, rolly poly and the weed I have selected, **Caltrop/**Cathead (***Tribulus terrestris***).This weed has become a serious problem throughout the district. The area studied is in the sheep yards next to the Bealbah House that includes a 6 hectare partly cultivated block. The weed is most obvious on the red sandy loam soils of the ram paddock.

***Below:*A Picture Of The Problem** **Green Line** ———— **= Area of Study**

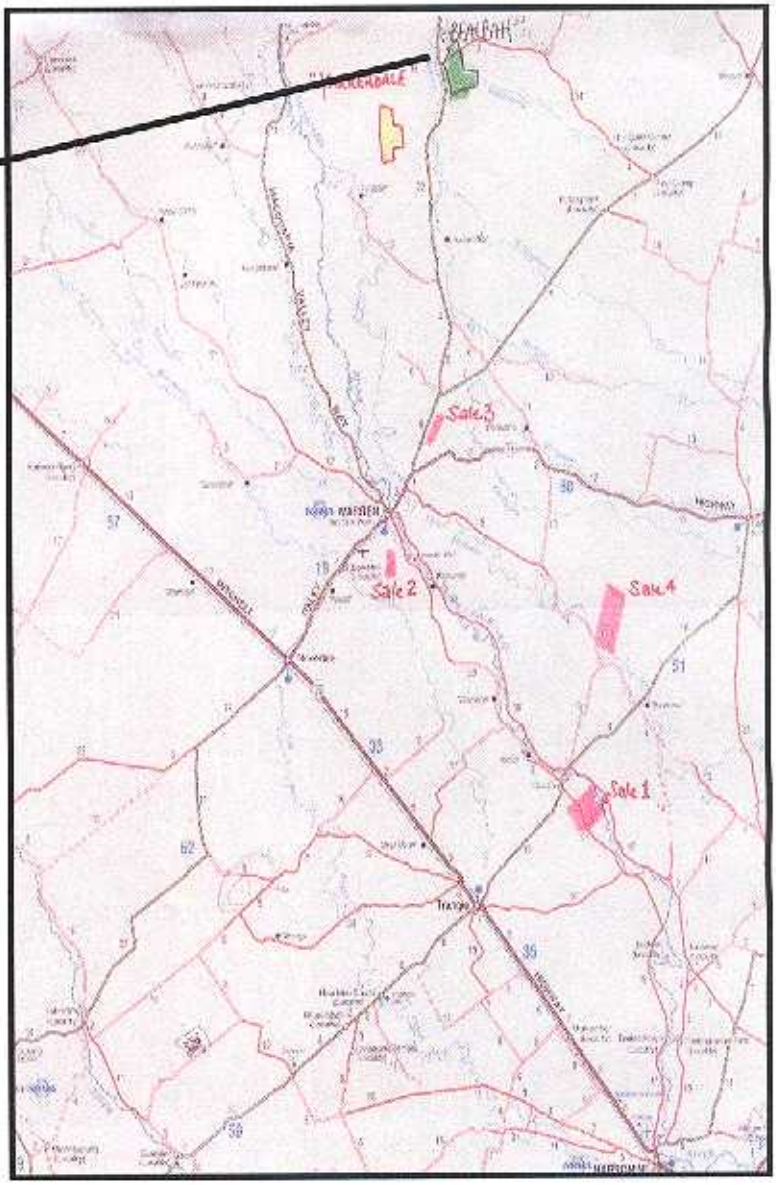
Bealbah

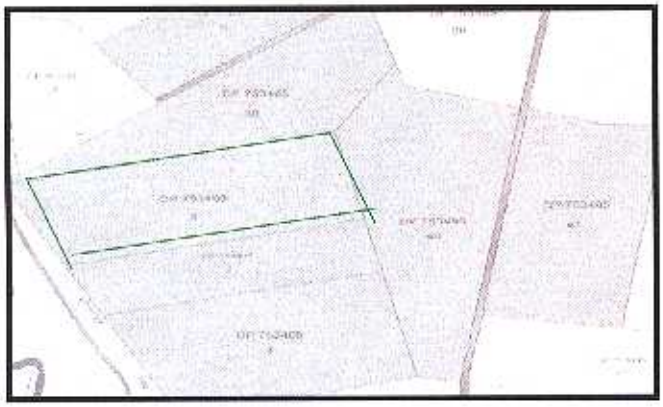
Warren NSW



N

S





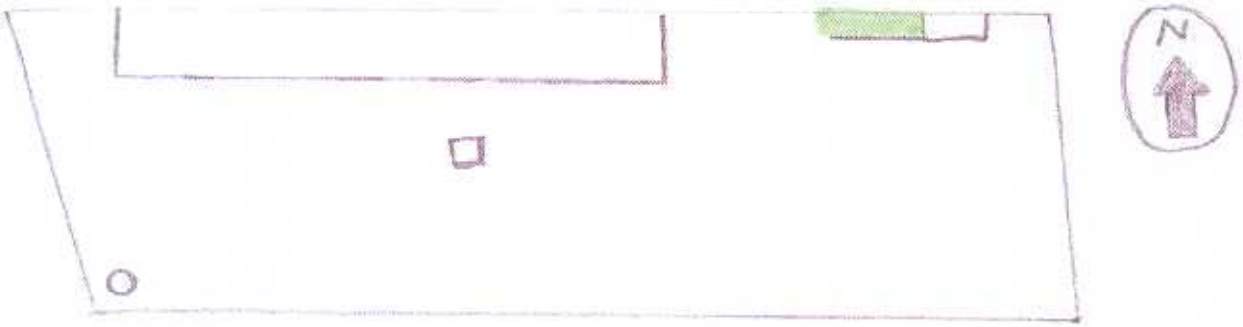
= 6 Hectare Cultivation

= Sheep Yards

= Effected Area

o = Dam

□ = House



So Whats The Problem?

Above: Sheep dog at work with Caltrop in foot

Caltrop was identified by our Agronomist Dave Klare and Dept of Ag Lee Jenkins. **Caltrop** is a member of the Tribulus weed species. It is a summer growing annual. It is one of the two problem species in NSW. **Caltrop** (***Tribulus Terrestris***) is an introduced species with a small yellow flower containing five petals as well as small spiny fruit. The other being **Yellow Vine** (***Tribulus Micrococcus***) which is native with a large yellow flower also containing five petals and spineless fruit is located in eastern areas of the state and not as much of a problem as the **Caltrop.** Even though **Caltrop** is not a declared noxious weed it has a large impact on our grazing environments. **Caltrop** or cathead is associated with nitrate poisoning, photosensitisation and sheep staggers.

Nitrate poisoning is a result of hungry sheep entering a new paddock with abundant caltrop (***Tribulus Terrestris***),eating too much too fast, so their bodies can't adjust and they can die within 48hrs.

Chronic ***Tribulus*** staggers is a result of continual eating of the **caltrop/** cathead for many months which may lead to progressive and irreversible weakness in the hind legs of the sheep. The unlike aspect of this disease is that it is much more predominant in one side of the body, so this makes the animal lean to one side therefore causing the animal to walk or run in a diagonal manner. The sheep often die from secondary causes such as flystrike, pneumonia and thirst.

Photosensitisation or 'yellow big head' is the result of toxins from the **caltrop** building in the liver which severely damage the skin and consequently leads to the owner having to remove the sheep or ram from the paddock and rehabilitate into a shady area for 7 -10 days so that the animals skin can recover.

Above: Sheep yarded to be inspected for skin damage due to build up in their liver from Caltrop

Above: Severely effected in the hindquarters from excessive Caltrop consumption

So What's Next....

Weed Management and Merits of Strategies

The friendly chemical man

On our irrigation section of our farm, **Caltrop** has been kept under control using an integrated weed management program. This involves using pre emergent and knock down herbicides, cultivation and a summer crop such as cotton which compete with **Caltrop,** (***Tribulus Terrestris***). Once row closure is achieved which ensures the stop of **Caltrop** infestations. Our aim is to use sections of this program that are economical viable to control caltrop in our infested areas.

Caltrop has been heavily infected on our grazing site and lightly infected our 6 hectare partly farmed area. Mechanical control such as ploughing is an effective way of cleaning the area especially when other weeds are present. The soils contaminated with **Caltrop** and other weeds has to be moist when ploughing to avoid severe dust storms and wind erosion which also would help the **Caltrops** seed spread to other areas an with it seeding up to 6 weeks there will be another outbreak.

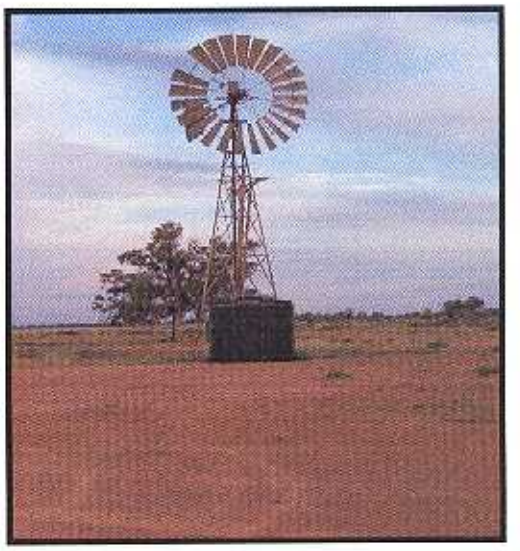
Continued ploughing may not be practical or economical and is a hard way to go about controlling **Caltrop.** Chemical control is most effective, but it is all about timing. It is important too spray when the weed is very small and young as it will set seed immediately if it is too mature when being sprayed or stressed. Knockdown herbicides such as Banvel (Dicambre and MCPA) have good control over grass pastures as do Tordon, a low volatile ester in (Ester 680) has been economical and effective of **Caltrop** this summer. Roundup is also effective but will take out your grasses leaving your ground bare. On our 6 hectare site the combination of mechanical and chemical control has kept the **Caltrop** in order. Where as the grazing site has received no measure till now.

Mechanical control is not possible here so a combination of chemical control and pastures regeneration will need to be employed. Our third control pasture regeneration will involve reducing stock numbers on the sight or removing stock completely from the area following spring rain for up to 12 weeks. Other controls such as chipping are possible in lightly effected areas.

In summary a combination of these strategies using our integrated weed management system will need to be employed depending on the season, wet or dry, timing of rain and the economical and cost benefit of these actions to keep the farm sustainable.

Land Caltrop and Stock

Above: Grazing country



Above: The Windmill Paddock

Above: Routine mustering of sheep

Above: Caltrop problem around dam area

Above: Around sheep yards Caltrop growth

Above: Yarded sheep to be checked for skin disorder

Caltrop (Tribulus Terrestris) Gallery

Caltrop grows as a prostrate annual herb with stems spreading up to 2 meters from a woody taproot. Leaves consist of 4 to 8 pairs of opposite oblong leaflets dark green on top with lower surface covered with hairs creating a silvery look. Flowers are small 8 to 15 mm in diameter with 5 bright yellow petals, flowers last only one day. Fruit a woody burr with sharp rigid spines which split into segments when ripe.

Above: Caltrop small yellow flower and woody burr with sharp rigid spines

Above: Close up view of effected area

Above: Yellow Vine has large yellow flower and a round burr

Above: Immature Caltrop

Above: Close image of the Caltrop base

Above: Close up view of singled out Caltrop plant

Above: Image of Caltrop plant

Above: Mature Caltrop

Above: Leaves consist of 4 to 8 pairs of opposite oblong leaflets

Bibliography

http://www.smr.herefordshire.gov.uk/education/tudor/Hereford%20falls%20by%20trickery.htm

http://fizyka.phys.put.poznan.pl/~pieransk/Physics%20Around%20Us/Physics%20around%20us.html

http://www.stuff.co.nz/stuff/3968592a3600.html

http://www.traveljournals.net/pictures/66912.html

Weed Control in Winter Crops 2006, NSW Department of Primary Industries

Weed Control in Lucerne and Pastures 2005, NSW Department of Primary Industries

Weed Control in Summer Crops 2005-06, NSW Department of Primary Industries

Interview with Mr. & Mrs. Beach

Interview with David Klare (Local Agronomist)

Interview with Lee Jenkins (Department of Agriculture)