Milk Thistle

Milk thistle (*Silybum marianum* (L.) is a flowering plant belonging to the daisy family (Asteraceae). Milk thistle is known by several other names, including Blessed Milk thistle, Spotted thistle, St. Mary's thistle, Marian thistle, Holy thistle and Variegated thistle. Milk thistle is native to the Mediterranean regions of Europe, North Africa and the Middle East but has been introduced throughout the world. The plant is valued for its medicinal properties, but it is sometimes grown as an ornamental because of its unusual leaves. Milk thistle spreads quickly and is considered a weed in some parts of the world. In the U.S.A., it grows wild in most southern states and the north-eastern and mid-west states. It has been declared a noxious weed in Washington, Oregon and Texas, but is not considered as a noxious weed in any Canadian province.

**Plant Description:**
Milk thistle is a vigorous tall upright plant that prefers dry sunny conditions. The spiny stems branch at the top, and reach a height of approximately 1.2 to 2 m. The spiny leaves are wide, with white blotches or veins. Milk thistle gets its name from the thistle like appearance of the leaves and the milky white sap that exudes from any cut surface. Flowers are generally red-purple. A solitary flower develops at the end of each stem. Milk thistle has an indeterminate growth and flowering habit, resulting in uneven development and maturity of flower heads. The mature fruit (achene) is relatively small with an attached white silky pappus. In the literature, the achenes, i.e. the ‘fruit’ are mostly (wrongly) referred to as ‘seed’. The immature fruit is soft and cream, tan, or brown in colour and the mature fruit is hard-skinned, shiny brown or brown with tan spots. Due to the indeterminate flowering habit at any point in time the milk thistle plant has some flowers that are still opening while others have progressed to the point where the seed is shattering. To address this issue of uneven seed maturity the mature heads are usually gathered by selective hand harvest. The large thorns on the stems, leaves and seed heads of milk thistle make hand harvest of the seed heads an exceedingly unpleasant task. While once-over machine harvest is clearly preferable from the perspective of efficiency, seed yield and quality may be compromised.

In the relatively cool and short Saskatchewan growing conditions, milk thistle is grown as an annual while in warmer longer growing environments milk thistle can be grown as a biennial.

**Uses of Milk Thistle:**
Every part of milk thistle including the stems, leaves, flower buds are edible. Milk thistle has been used for over 2,000 years as a herbal remedy for a variety of ailments, particularly for liver and gall bladder problems. Studies suggest that substances in milk thistle (especially a flavonoid called silymarin) protect the liver from toxins, including certain drugs such as acetaminophen (Tylenol), which can cause liver damage in high doses. Silymarin has antioxidant and anti-inflammatory properties, and it may help the liver repair itself by growing new cells.

The leaves are used as a salad green or cooked. Leaves can be trimmed of prickles and boiled or added raw to salads. There are as yet no known medicinal properties for milk thistle leaves. It is claimed that in recent times a number of herbal medicine manufacturers have introduced products containing milk thistle leaves but these products had no apparent therapeutic value.

**Constituents:**
The principal extract of milk thistle fruit, silymarin (4% to 6% in ripe fruit), is composed of several
polyphenolic flavonolignans. The major component (60%) is silybin (also known as silibinin or silybinin) is also the most biologically active component. Other components include silichristin (also known as silychristin, silycristine or silicristin), a metabolic stimulant, and silydianin. Silymarin is found in highest concentrations in the fruit of the plant. Other constituents are flavonoids, a fixed oil (16% to 18%), betaine, trimethylglycine (TMG) and amines.