Table 2.2 Effect of controlled subirrigation/drainage (CDS) and regular/traditional tile drainage (DR) on corn yields in 2000, 2001 and 2003, and on soybean yields in 2002 and 2004.

Treatments	Yields (kg/ha)				
	Corn 2000	Corn 2001	Soybean 2002	Corn 2003	Soybean 2004
Regular/Traditional Tile Drainage/No irrigation (DR)	6663	3706	2216	7405	1269
Controlled Drainage/Subirrigation (CDS)	7155	7064	3308	9029	1508

2.2.8 Controlled Drainage/Subirrigation, Chatham Kent, Bert Rammelaera Farm (2007 pers. comm.)

Mr. Rammelaera has installed CDSI on 160 acres of Brookston (soils) farm land. Water is pumped from a creek into a drainage ditch and then directly to an 8 inch header **discharging to the lateral drains.**

- **Drains are spaced at 5 m**.
- **Laterals are installed at 0.08% grade**
- **Estimated 40 bu/acre yield advantage over conventional drainage**

2.3 Eastern Ontario and Quebec

2.3.1 Drain Spacing Modelling Study Ste. Rosalie Clay, Quebec (Madramootoo, 1990)

Madramootoo undertook a modelling study with 24 years of climate data to quantify the yield and water management benefits associated with **four drain spacings (5, 10, 15 and 20 m) for grain corn** on a Ste. Rosalie clay in Quebec.

- The soils were primarily heavy clays with some fine sands and silts overlying clay subsoil.
- Saturated hydraulic conductivities of these clays averaged from 0.0003 to 1.03 m/day.
- Drainage contractors have encountered problems installing drains in sensitive saturated clays. The drain plow smears and seals the soil around the pipes, thus reducing water entry.
- Heavy clay soils should be subsurface drained in order to improve machine trafficability and reduce damage to soil structure (Steinhardt and Trafford, 1974).