



SOLAR FLOPPY IRRIGATION LIMITED

Rain on Demand

NOW IN EASTERN AFRICA

THE FUTURE OF FARMING

Floppy Sprinkler™ Technology offers a revolutionary solution for farmers who need reliable water to grow crops year-round, be it maize, barley, silage, potatoes, horticulture, fruit, or nut farming.

Solar Floppy Farmers benefit from fewer inputs - and get higher yields.

Because the Solar - Floppy combo is so efficient and mimics natural rain, it out-competes sprinklers, grid-based center-pivot, drip and rain-gun irrigation on all land, whether hilly, flat or in greenhouses.

Solar-powered Floppy Sprinkler Systems open up vast areas of off-grid farmland even where there is deep ground water.



ADVANTAGES: ON-GRID OR OFF-GRID

UNIQUE ADVANTAGES

- Solar-powered Floppy Farmers have no recurrent energy costs (electricity/generator) and are climate friendly
- Even water distribution throughout every field whether uphill or downhill, near or far from the pump. This is because it is the only irrigation system in the world with a built-in flow controller on every unit
- Precision Agriculture: Solar Floppies can be linked with soil moisture sensors and thus fully automated
- Minimal, do-it yourself maintenance
- Best in Irrigation-Five-Year Guarantee on all Floppy sprinklers



IN-LINE FERTIGATION, CHEMIGATION AND FOLIAR FEEDING

- No wastage of resources with over-application of these expensive chemicals
- Leaves are washed with every watering cycle, increasing photosynthesis and thus quality and yields
- Decreased pesticide, fungicide and fertilizer requirements because of vibrant crop-health



CROP COOLING

- Floppy-cooled fields increase successful pollination and attract more beneficial insect pollinators
- During key crop growth phases, temperatures over 30° C can significantly decrease crop productivity. Short bursts from Floppy sprinklers during hot days decreases field temperatures 4 - 10° C and can substantially increase crop quality and yields



REMOVES RISK FROM FARMING

VALUE – PAYS FOR ITSELF IN 3 YEARS OR LESS

- Energy savings over grid or diesel-based irrigation
- Savings on maintenance costs
- Decreased need for synthetics (fungicides, pesticides, herbicides)
- 25-year lifespan for both Floppy sprinklers and our solar Installations
- Virtually maintenance free compared to drip, impact, center-pivot, and rain-gun systems
- Yield increases of 15-40% are reported by Floppy farmers

HOW SOLAR FLOPPY SPRINKLERS OUTPERFORM DRIP IRRIGATION

- 15 - 25% less water compared to drip irrigation
- Yield and quality increases of 15-40% are reported by Floppy Farmers
- 25-year lifespan for both Floppy sprinklers and our solar Installations
- Production under Floppy Sprinklers is always greater than with drip irrigation because:
 - Floppy washes plant leaves like rain which increases photosynthesis and production, drip cannot do this
 - Just the right amount of water prevents runoff and gives the plant roots optimal amounts of water, reducing crop pest and fungal damage
 - Floppy Sprinklers can cool plants and micro-environment around plants by decreasing temperatures 4 -10° C. When temperatures are greater than 30°C plant growth slows, pollination is less and crop productivity decreases
 - Floppy sprinklers are 4-5 meters overhead unlike drip irrigation lines that frequently clog, can be damaged by farm equipment, rodents or vandalism
 - Virtually maintenance-free compared to drip systems



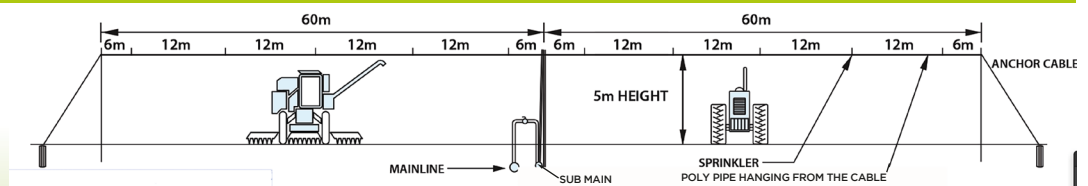
RAIN ON DEMAND – THE FUTURE OF FARMING

The Floppy Sprinkler consists of a plastic nipple on which a high-tech, flexible silicon tube is mounted. When water is passed through the tube it snakes to and fro while slowly “flopping” back and forth, all the way around (360°), forming uniform raindrops, evenly distributed throughout the field. Each sprinkler is fitted with a flow controller that regulates flow to 730 liters per hour with suitable pressures varying from 2 to 6 bar. The flow controller controls the flow regardless of pressure.

2 SYSTEMS: THE FLOPPY OVERHEAD CABLE SYSTEM & FLOPPY RISER SYSTEM

The unique Floppy sprinkler design allows for different installation options as required by the crop: An **overhead cable system** with no equipment on the ground is ideal for vegetables, cereals, Lucerne and other crops where tillage practice and harvest equipment favors an overhead system.

A **short riser** or **tall riser** system is ideal for vegetables, sugarcane, bananas, Napier grass, and greenhouse crops.

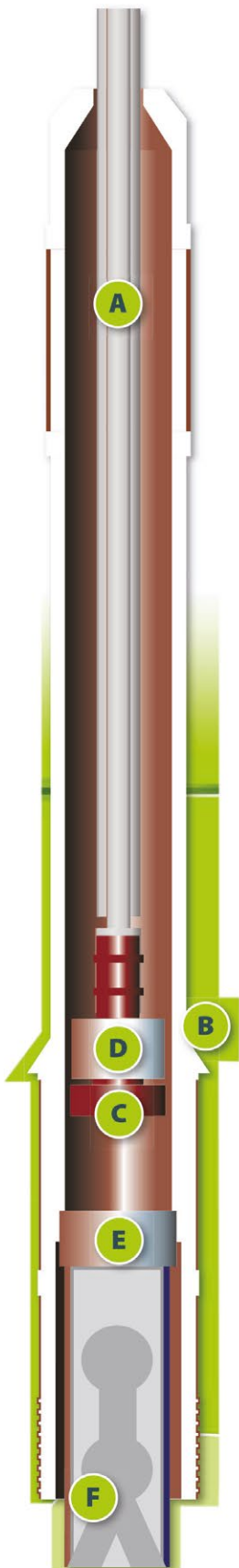


OVERHEAD CABLE TECHNICAL SPECIFICATIONS

1. One sprinkler uses 730 litres per hour. The flow controller maintains the discharge within 5% from 1.8 to 6 Bar
2. The recommended minimum pressure at the sprinkler is 2 Bar
3. The gross precipitation rate 5mm per hour (on a 12x12 meter spacing)
4. Filtration: **A good sand filter** or micron screen filter recommended
5. The poles are 12m apart with a span of 60 meters
6. The sprinklers hang on a 6mm cable (7x2mm stay wire) pulled to a tension of 1,200kg
7. The anchor poles are 125-150mm thick and support poles are 75-100mm thick, and planted one meter into the ground. The cable is 5 meters high above the ground

SPRINKLER COMPONENTS

- | | |
|---|--|
| A Silicone floppy tube | D Sprinkler head for rotation |
| B Sprinkler body with 3/4" male thread | E Weight to retract tube |
| C Flow controller plastic part | F Silicone flow controller sleeve |



ON-FARM DEMO: SOLAR FLOPPY SPRINKLER VS CENTER PIVOTS

2018-2019 WINTER SEASON

On-farm demo results comparing Floppy sprinkler performance Vs Center Pivots on the 23,000 acre Al Salhia farm in Egypt growing wheat, barley and lucerne.

- | | |
|----------------------------------|-------------------------------------|
| 1 Increase in production: | 4 Energy saving: |
| Wheat: 46% | Wheat: 25% |
| Barley: 45% | Barley: 30% |
| Lucerne: 42% | Lucerne: 30% |
| 2 Water saving: | 5 Fertilizers saving: |
| Wheat: 25% | Wheat: 35% |
| Barley: 30% | Barley: 50% |
| Lucerne: 27% | Lucerne: 40% |
| 3 Quality increase: | 6 Pesticides and fungicides: |
| Wheat: 50% | Zero for all three crops |
| Barley: 45% | |
| Lucerne: 40% | |



Al Salhia farm is now replacing all its center-pivot systems with solar-powered Floppy Sprinkler™ systems

Note: Farmer skills, soil type, crop selection, water needs, climate conditions vary between farms so your farm may experience larger or smaller gains than this farm.

OTHER AGRICULTURAL APPLICATIONS

Floppy Sprinkler™ systems are a perfect fit for any shape of land or steep slopes, and a suitable replacement for existing irrigation systems, as well as new irrigation developments.

Floppies can be mounted on an overhead sprinkler cable system, a riser sprinkler system or a micro sprinkler system in different water application sizes.

Furthermore, Floppy Sprinkler™ irrigation systems are suitable for large agricultural projects, commercial farmers as well as small holder farms.

Because they can be laid out in any configuration, Floppy sprinklers can increase irrigated land by 27% over center-pivot irrigation



Please visit our website SolarFloppy.com for more uses of solar-powered Floppy sprinklers.



SOLAR FLOPPY IRRIGATION LIMITED

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