
Agricultural Plastics Use and Waste Management Quick Overview in Tampa

Arthur Amidon

Overview

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- US Agricultural Plastic (AgPlastic) Use
 - Waste Management Methods
 - Florida AgPlastics
 - Future Needs & Developments
 - Questions & Answers

1997 US Agricultural Plastics

Plastic Market	Million lb.
Horticultural Film	126
Irrigation Tubing	54
Livestock Plastics	142
Misc. Row Covers, etc.	41
Nursery Containers	422
Pesticide Containers	31
Totals	816

Horticultural Film Plastics

Plastic Market	Million lb.
Greenhouse & Nursery Film	30
Mulch Film	70
Reflective Mulch Film	8
Fumigation Film	17
Degradable Mulch	1
Totals	126

Irrigation Tubing

Tubing Type	Million lb.
Drip Tubing & Tape	37
Large Diameter Tubing	17
Totals	54

Livestock Plastics

Plastic Market	Million lb.
Animal Housing Film	8
Bunker Silo Covers	6
Hay Bale Singles	4
Silage Bags	9
Stretch Wrap	40
Polypropylene Baler Twine	70
Knit Bale Wrap & Netting	5

Totals

142

Miscellaneous Covers, Shading, Barriers & Bags

Plastic Market

Million lb.

Row Covers

2

Shading

10

Weed Control Barriers

6

PP Cotton Bale Bags

16

PE Cotton Bale Bags

7

Totals

41

Nursery Containers

Plastic Market

Million lb.

Blow-Molded HDPE Pots

110

Injection-Molded HDPE Pots

110

Rotational-Molded HDPE Pots

2

Injection-Molded PP Pots

100

Polystyrene Pots, Packs & Flats

100

Totals

422

HDPE Pesticide Containers

Plastic Market

Million lb.

Blow-Molded less than 2.5 gallon

3.5

Blow-Molded 2.5 gallon

19

Injection-Molded 5 gallon

.75

Extrusion Blow-Molded 30 & 55 gal.	6.5
Rotational-Molded Refillable	1.5
Totals	31.25

Waste Management Methods

- Landfill
- Burn or Bury On-Site
 - Legal & Illegal
- Incinerate for Waste-to-Energy
- Re-Use
- Recycle

Greenhouse & Nursery Film

- US Market 30 Million lb.
 - 20% annual industry-wide growth
- 5-10% Recycled
- Majority is Landfilled

Florida Greenhouse & Nursery Film

- Florida Market = 25% US Usage
- 6-8 Million lb./year
- Fall Poly from 4mils down to 3 mils
 - 25% source reduction

Mulch Film

- US Market 70 Million lb.
- None Recycled
- Some baled to Incinerate or Landfill
- Equipment
 - Sonoco Balers loaned to farmers
 - Brooks & Sons Balers sold to farmers
 - Kennco Field Burners sold to farmers

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- US Agric. Equip. Co. Furnace Research
 - Pennsylvania State Nugget Research

Irrigation Tubing

- Drip Tubes & tape: 37 Million lb.
 - Use increasing rapidly throughout US
 - Drip under mulch: 1993 – 1%; 1998 – 25%
 - Toro Ag Irrigation Recycling in California
 - Oxnard, Santa Maria, Salinas pilots May 1999
 - Est. CA: 1 billion linear feet = 10 Million lb.
- Large Diameter tubing: 17 Million lb.

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- Recycle 5 million lb. per year
 - 25% Recycle Rate

Florida Mulch & Drip

- Florida = $\frac{1}{3}$ US Mulch = 25 Million lb.
- If 70k acres mulch, then = 10 Million lb.
- Florida Drip in 1991 = 1.7 Million lb.
- Collier County

- '85-'95 = 110 Million lb. = 1.8% of MSW
- '96-'99 = 8-10 Million lb./year
 - 50% or more contamination
 - 4-5 Million lb. Film & Drip = 0.9% of MSW

Florida Mulch & Drip Use Variables

- Acres Decrease = less lb.
- Drip Irrigation Increases = more lb.
- Mil thickness Decreases = less lb.
- Low Density to High Density = less lb.
- 25% of US Methyl Bromide = uncertain
- Double Cropping/Double Duty

Livestock Plastics

- 142 Million lb.
 - Most burned On-Site at farm
- Silage Bags & Covers and Baler Twine
 - EW Plastic, San Joaquin Valley, Claifornia
 - Collects from 300 farms and exports to South America and Far East
- Bales according to contamination levels



Miscellaneous Ag Plastics

- Cotton Bale Wrap Bags
 - Polypropylene – 16 Million lb.
 - Polyethylene – 7 Million lb.
- National Cotton Council
 - Bags must be recyclable by 2002

Nursery Containers

- 422 Million lb.
- HDPE & Polypropylene
 - Very little recycling, some re-use
 - Off-spec. and post-consumer/industrial content
- Polystyrene
 - National Polystyrene Recycling Company

- Canadian Polystyrene Recycling Association
 - Recycling doubled from 1994 to 1997
 - Recycled content

US Pesticide Container Recycling

Year	Generated	Collected	Rate
1990	24.7	0.35	1.42%
1991	27.4	0.85	3.10%
1992	32.6	1.28	3.93%
1993	38.8	2.61	6.73%
1994	32.7	3.76	11.50%

1995	35.8	5.18	14.47%
1996	5.94		
1997	6.40		

Source: ACRC, Million lb.

Future Needs & Developments

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- information access and exchange,
 - coordinated industry efforts,
 - shared responsibility for waste plastics management,
 - promotion of clean collections of valued agplastics,
 - promotion of appropriate waste-to-energy options,



Future Needs & Developments

- promotion of agplastic recycling facilities,
- pesticide residue research for agplastics,
- research on the safety of field-burning plastics,
- increased markets for collected plastics, and
- plastic products for agriculture, made with recycled content.