

Economics of SW GA Agriculture:

Management Scenarios and Impacts

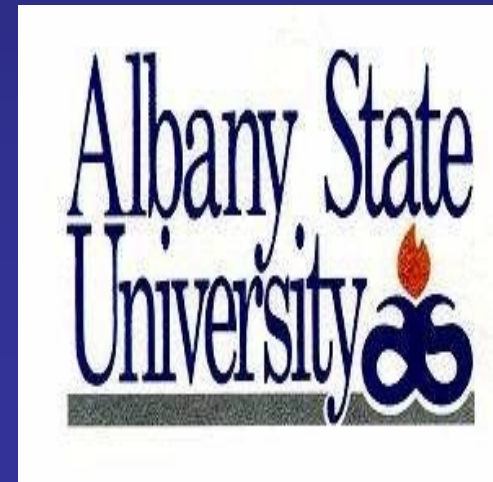
Stakeholder Advisory Committee

Albany, GA

August 25, 2005

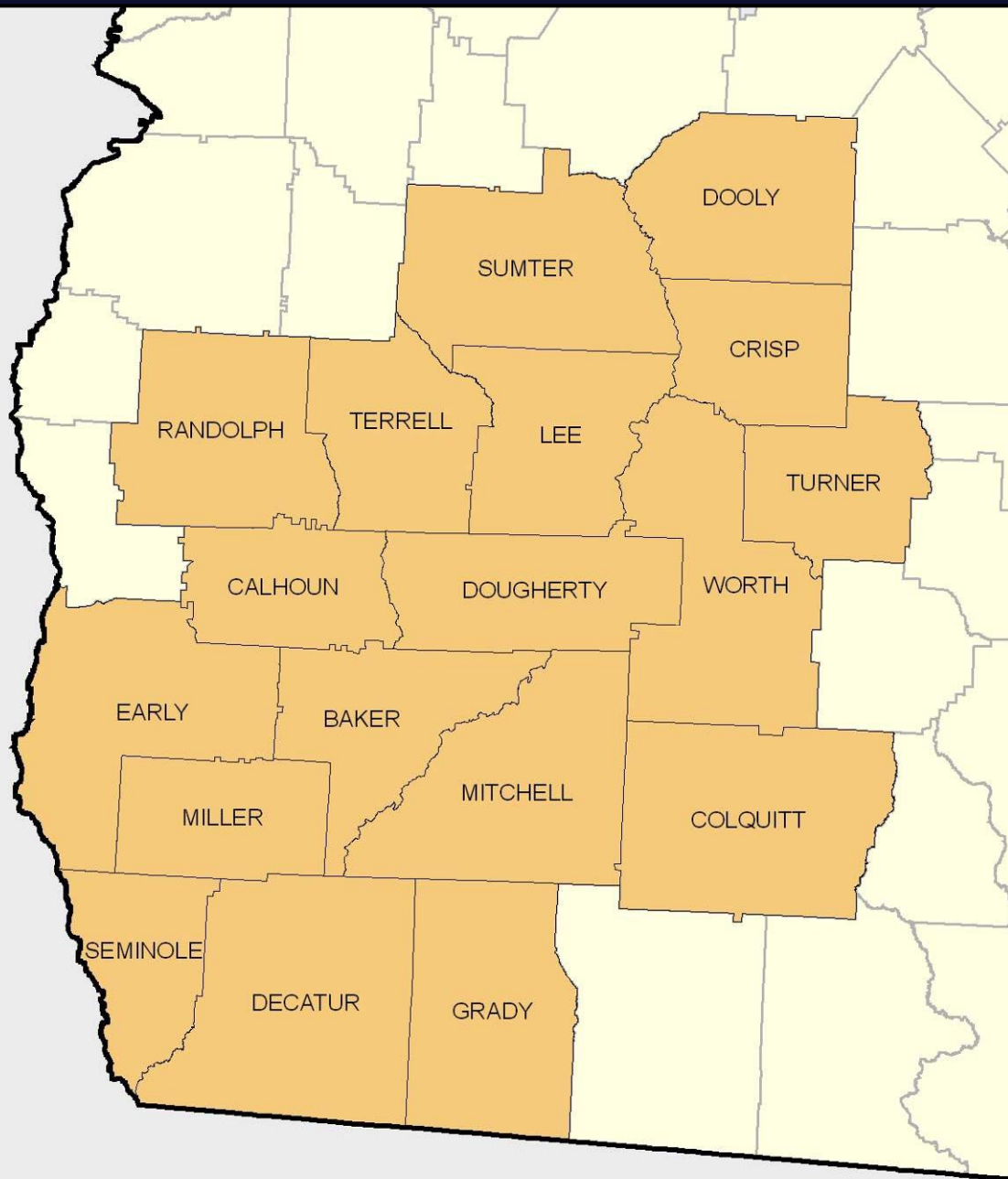
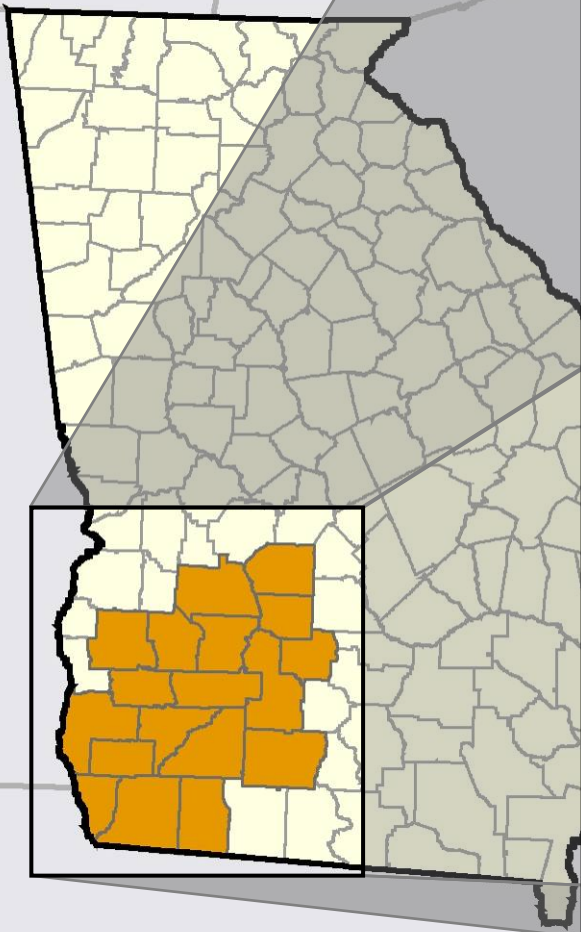


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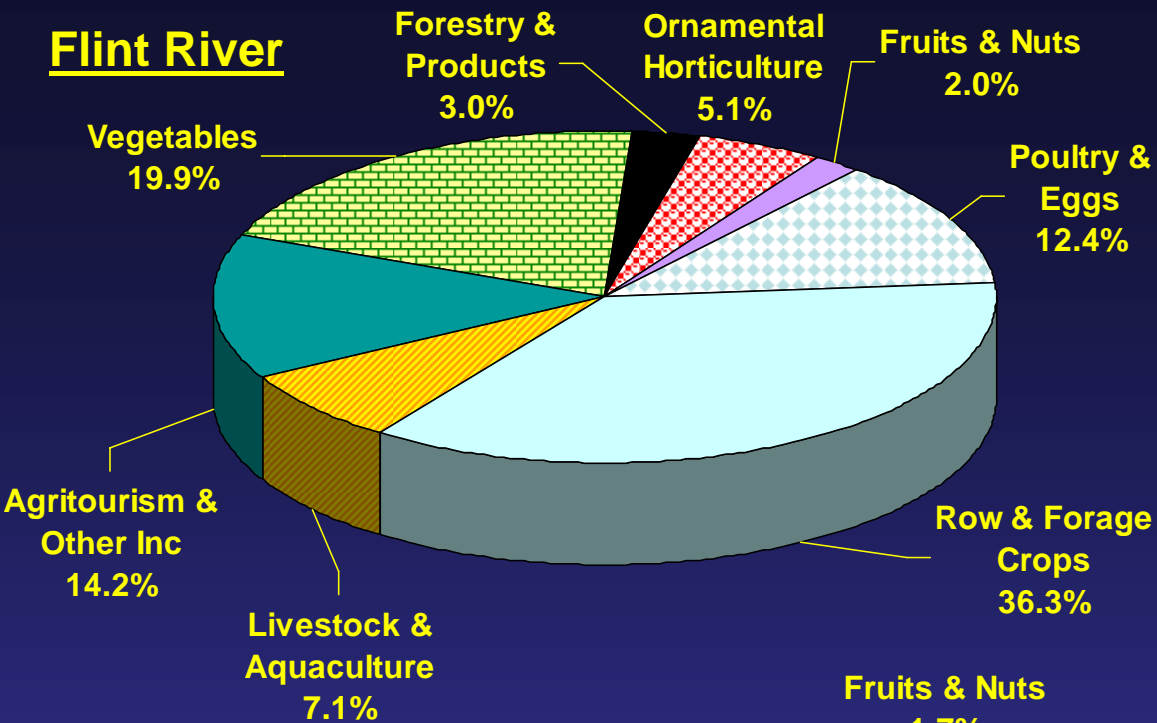


Outline

- What is the economic impact of agriculture to the Lower Flint River Basin and SW GA as a whole?
 - Farm gate, direct and indirect output/employment
 - *Waters and McKissick, 2004*
- What are the potential impacts of reducing irrigated acreage in Spring Creek and Ichaway sub-basins?
 - Scenarios from EPD surface water models
 - Assumptions
 - Irrigation and yield data
 - Basin level (four-county regions)
- This brief analysis was performed at the request of EPD/CVIG for the Stakeholder Advisory Committee and was based upon acreage data provided by EPD. Acreage reduction/increase assumptions were consistent with those included in EPD surface water models.

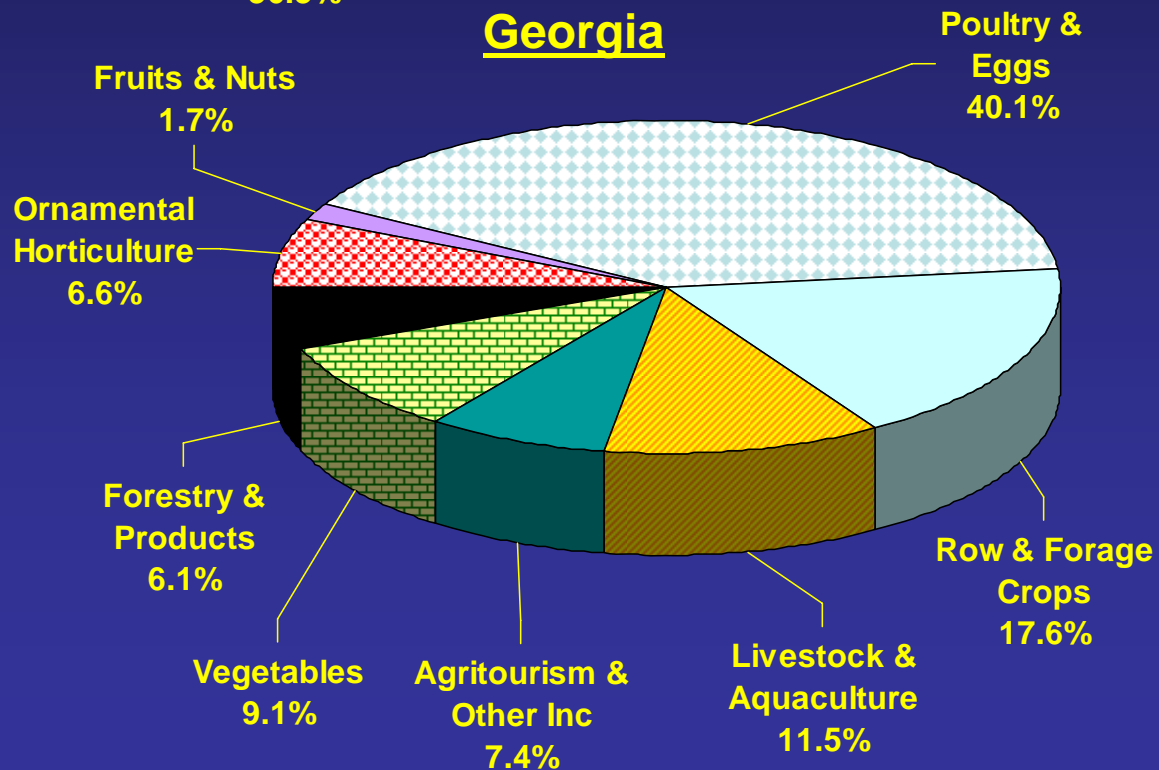


Flint River



Farm Gate Value Commodity Groups: 2003

Georgia



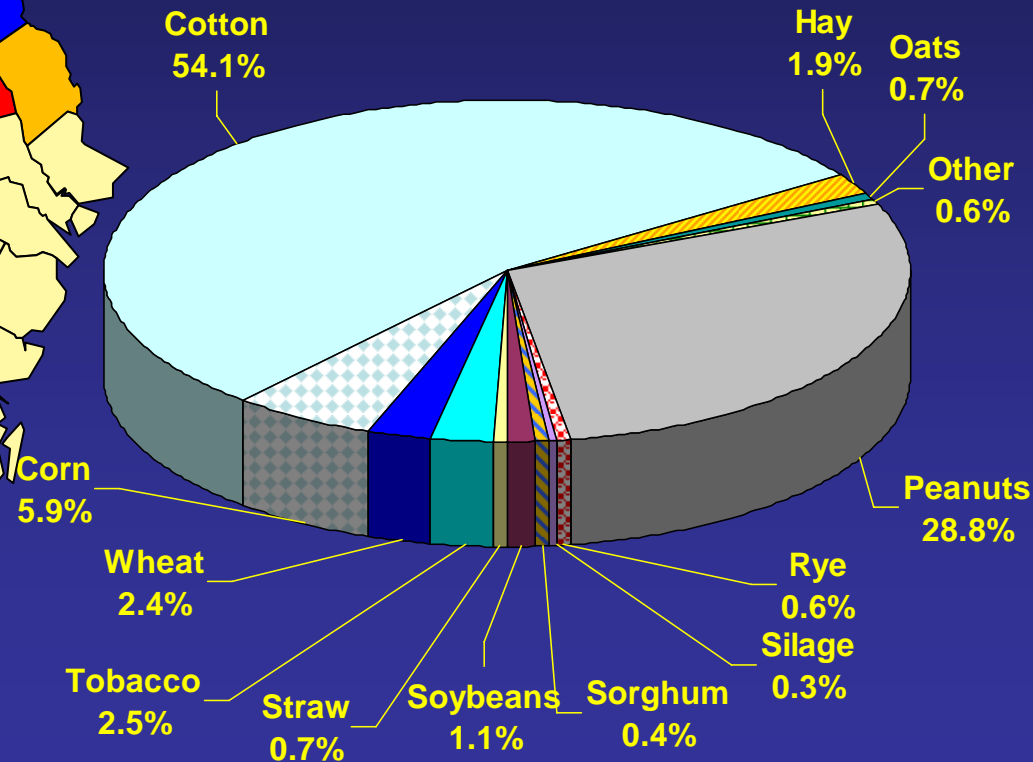
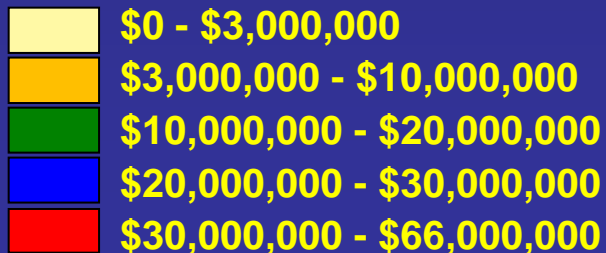
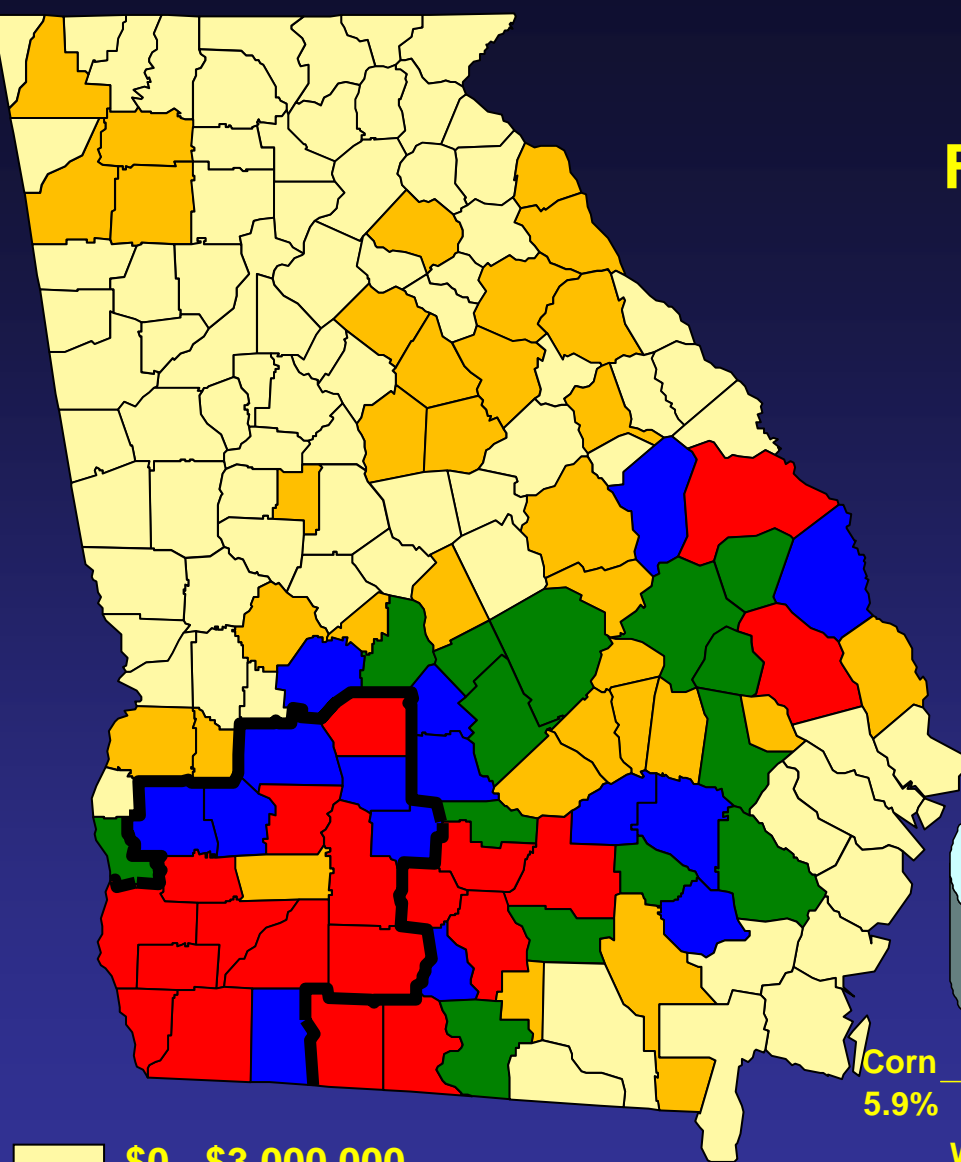
Farm Gate Value

Flint = \$1.920 billion

GA = \$9.859 billion

Row & Forage Crops Farm Gate Value: 2003

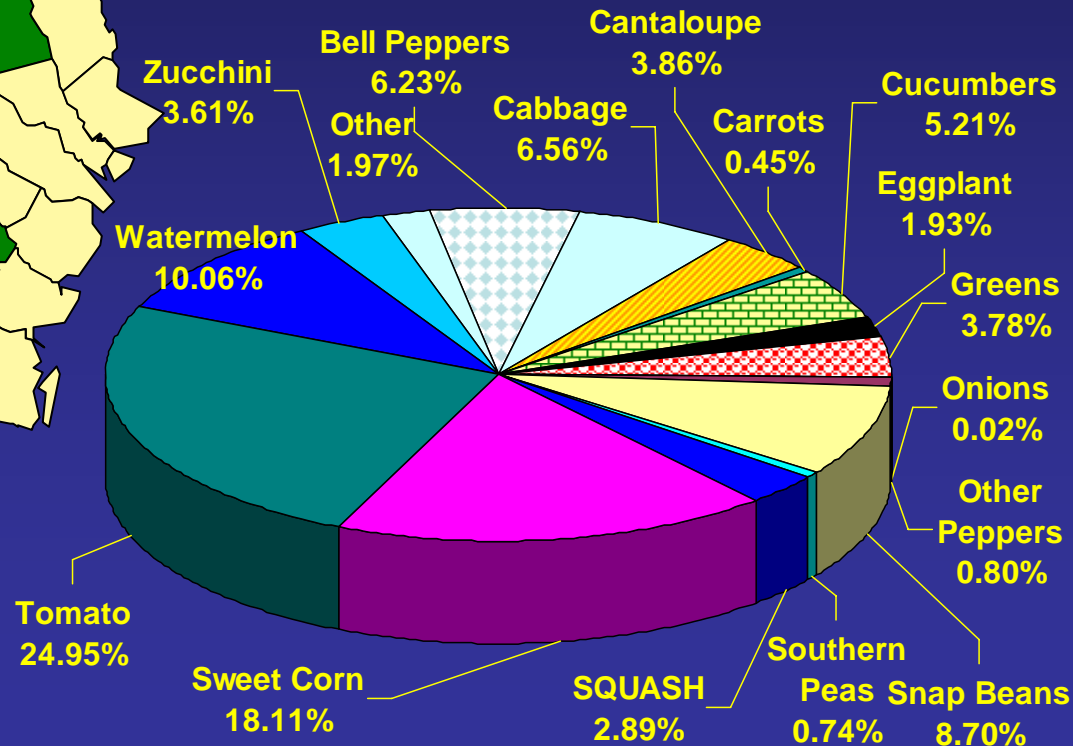
GA = \$1.733 billion
Flint = \$697 million



Vegetables Farm Gate Value: 2003

GA = \$901.2 million

Flint = \$381.6 million



Flint River Basin

Primary Crops

	Output in \$ Millions	% of GA
CORN	41.289	35.60
COTTON	376.624	46.82
PEANUTS	200.376	54.92
SOYBEANS	7.832	16.47
OTHER ROW CROPS	70.456	17.60
VEGETABLES	381.624	42.35
FRUITS & NUTS	38.916	16.58
ORNAMENTALS	60.733	12.26
TURFGRASS	37.310	24.70
Total	\$1,215.169	34.57%

Flint River Basin Economy

Production Agriculture-OUTPUT

	Output in \$ Millions	Percent
Agriculture	2,030.169	12.05
Mining	1,118.365	6.64
Construction	54.964	0.33
Manufacturing	8,456.410	50.17
Trans/Public Util	310.238	1.84
Trade	233.203	1.38
Fin/Ins/Real Est	142.492	0.85
Services	1,661.082	9.86
Government	2,232.465	13.25
Other	614.699	3.65
Total	\$16,854.087	100.00%

Flint River Basin Economy

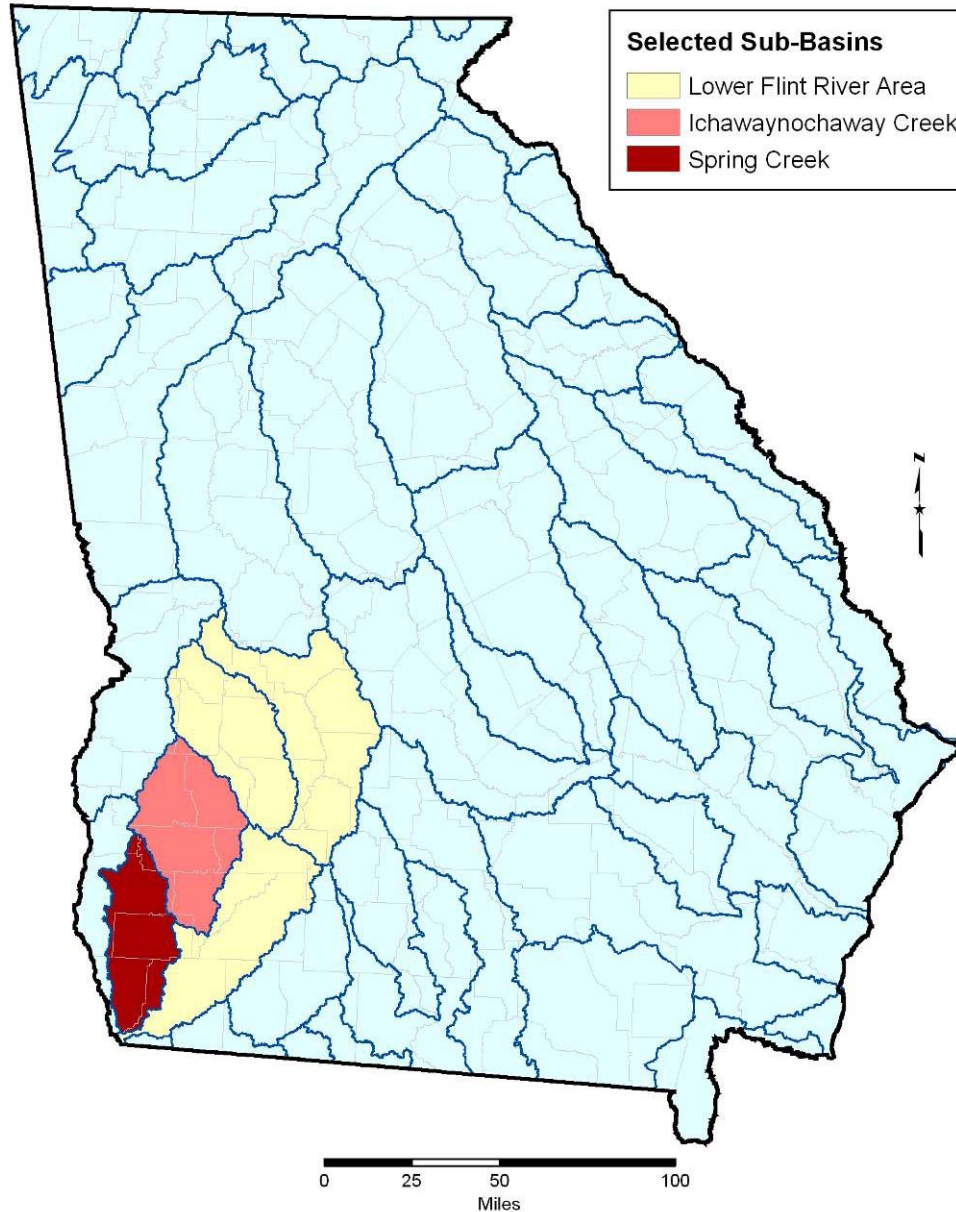
Production Agriculture + Directly Related Businesses

	Output in \$ Millions	Percent
<i>Agriculture + Direct</i>	3,748.511	22.24
Mining	1,118.365	6.64
Construction	54.964	0.33
Manufacturing	6,738.068	39.98
Trans/Public Util	310.238	1.84
Trade	233.203	1.38
Finance/Ins/RE	142.492	0.85
Services	1,661.082	9.86
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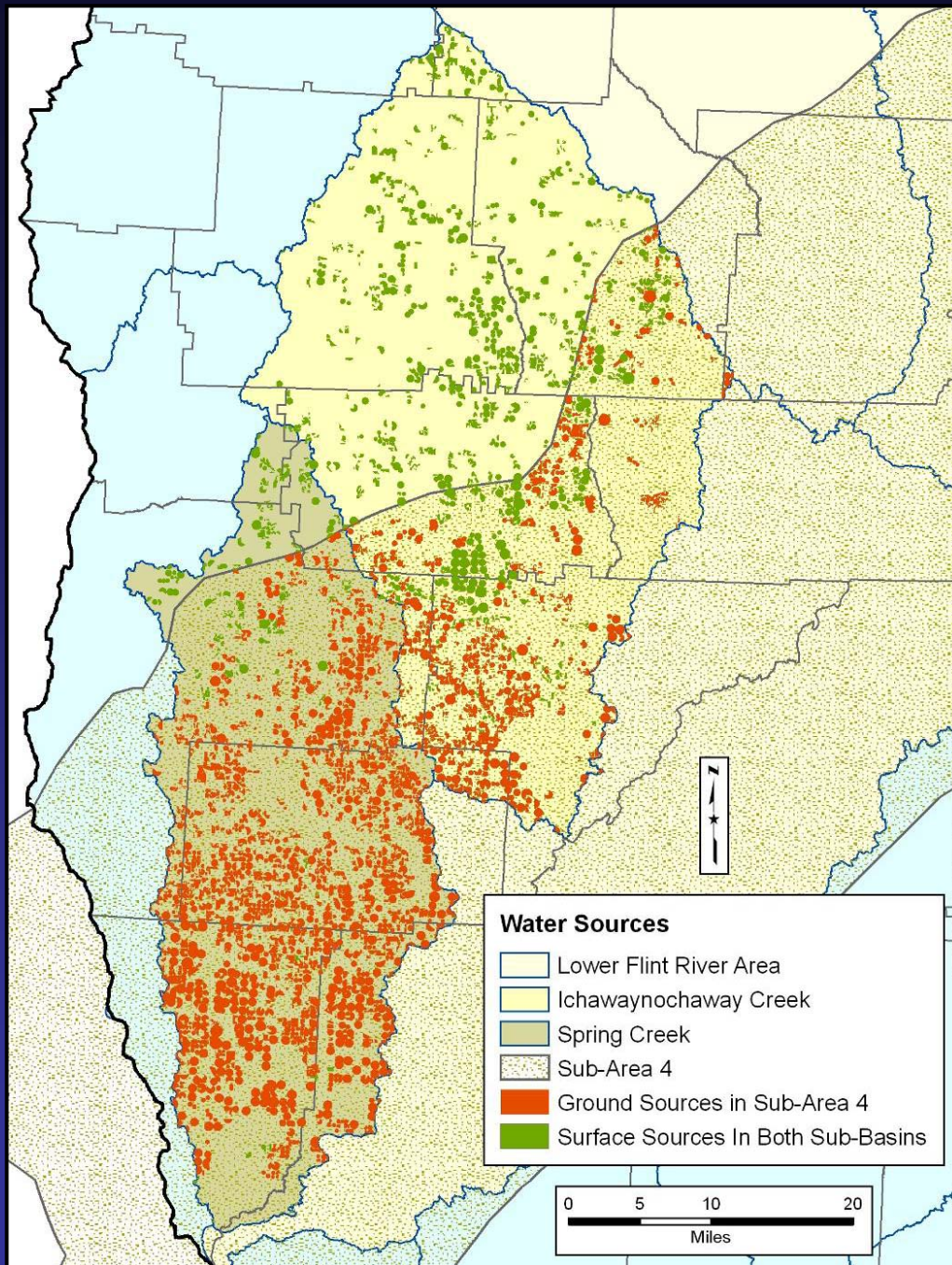
Flint River Basin

Agriculture and Directly Related Businesses *IMPACT*

	Direct \$ (millions)	Indirect \$ (millions)
Agriculture + Direct	3,748.511	495.772
Mining	0	60.428
Construction	0	0.190
Manufacturing	0	908.303
Utilities	0	54.167
Trade	0	51.128
Fin / Ins / Real Est	0	17.545
Services	0	173.275
Government	0	232.915
Other	0	64.155
Total	\$5.8 Billion – 34.45% of total economy	



- Concentration of modeling efforts in Ichaway and Spring Creek Sub-basins.
- EPD surface water models indicate low-flow violations under some conditions
 - Especially Spring Crk
- 326,204 permitted irrigated acres in these two basins (NESPAL, 2003)
 - 153,263 (Ichaway)
 - 172,941 (Spring)
 - $\approx 62\%$ of harvested land



- This analysis was limited to all surface water w/drawals and those ground water w/drawals out of the Upper Floridan *as determined by EPD*
- This amounts to roughly 241,000 irrigated acres
 - 100,890 in Ichaway
 - 140,130 in Spring
- Ichaway region includes Terrell, Randolph, Calhoun, and Baker Counties
- Spring Creek region includes Early, Miller, Seminole, and Decatur counties

Impact Model

- IMPLAN
 - IMpact analysis for PLANning
 - Input–Output model describing commodity flows from producers to final consumers
 - Driven by purchases for final use or final demand (in our case, lost revenue from not irrigating)
 - Direct effects
 - Indirect Effects
 - Multipliers
 - Region specific
 - Base model or modified

Acreage Reduction by Crop

	Baseline	20%	30%	40%	Bklg.
<i>Ichaway</i>	<i>100,890</i>	-20,178	-30,267	-40,356	<i>+16,517</i>
Peanut		-7,062	-10,593	-14,124	+5,781
Cotton		-10,089	-15,133	-20,178	+8,258
Corn		-3,027	-4,541	-6,054	+2,478
<i>Spring</i>	<i>140,130</i>	-28,026	-42,039	-56,052	<i>+17,255</i>
Peanut		-9,809	-14,714	-19,618	+6,039
Cotton		-14,013	-21,019	-28,026	+8,627
Corn		-4,204	-6,306	-8,408	+2,589

Numbers shown in **RED** were provided by EPD. Peanut, cotton, and corn acreage is roughly 86% of the total irrigated acreage in these two basins. Assume all reduction from these crops w/ the following distribution: PN (35%), CT (50%), CN (15%)

Crop Assumptions

Crop	Irrigated Yield ^a	Non-Irrig Yield	Irrig (ac/in)	\$/unit ^b
Peanut	<i>5256 lb/ac</i>	<i>2512 lb/ac</i>	<i>10.5</i>	<i>\$.19</i>
Cotton	<i>1402 lb/ac</i>	<i>433 lb/ac</i>	<i>11.15</i>	<i>\$.64^c</i>
Corn	<i>185 bu/ac</i>	<i>117 bu/ac</i>	<i>14.95</i>	<i>\$2.90^c</i>

^a Yield and irrigation data collected during CY 2004 from USDA-ARS NPRL Multi-Crop Irrigation Research Farm.

^b 2004 Estimated Georgia Prices compiled by UGA CAES.

^c Includes Loan Deficiency Payment (LDP)

The following IMPLAN results assume farmers will produce a dryland crop. Impacts were calculated only for the four-county Ichaway and Spring regions (see previous).

IMPLAN Results

Multiplier



	Output (1.395)		Employment (1.686)	
	Direct	Total	Direct	Total
Ich – 20%	-\$10,535,660	-\$14,699,214	-101	-170
Ich – 30%	-\$15,803,660	-\$22,048,819	-151	-254
Ich – 40%	-\$21,071,320	-\$29,398,430	-202	-341
Ich – Bklg.	+\$8,624,120	+\$12,032,259	83	+140
	Output (1.525)		Employment (1.946)	
	Direct	Total	Direct	Total
Spr – 20%	-\$14,633,383	-\$22,331,058	-152	-296
Spr – 30%	-\$21,950,075	-\$33,496,590	-228	-445
Spr – 40%	-\$29,266,767	-\$44,612,051	-310	-596
Spr – Bklg.	+\$9,009,457	+\$13,460,439	+102	+197

20% Reduction in Irrigated Acreage

	Ichaway Region		Spring Creek Region	
	Output	Employment	Output	Employment
Manufacturing				
Non-Durables	-\$74,086	-0.7	-\$364,286	-1.8
Durables	-\$108,026	-0.6	-\$167,930	-0.8
Non-Manufact.				
Ag Services	-\$738,282	-29.8	-\$1,668,524	-71.5
Mining	\$0	0	-\$4,740	0
Construction	-\$53,054	-1	-\$145,239	-2.1
Trans/Utilities	-\$374,669	-2.7	-\$519,583	-3.6
Ret/Whl Trade	-\$1,046,811	-7.7	-\$1,578,065	-30.2
Fin/Ins/Real Est	-\$796,157	-3.1	-\$1,562,687	-8.3
Services	-\$414,627	-7.3	-\$1,029,382	-17.8
Government	-\$184,349	-1.9	-\$206,966	-2.5
Farm	-\$10,909,152	-105.5	-\$15,083,655	-157.7
TOTAL	-\$14,699,214	-170	-\$22,331,058	-296.5

30% Reduction in Irrigated Acreage

	Ichaway Region		Spring Creek Region	
	Output	Employment	Output	Employment
Manufacturing				
Non-Durables	-\$111,130	-1.1	-\$546,430	-2.7
Durables	-\$162,040	-0.8	-\$251,895	-1.3
Non-Manufact.				
Ag Services	-\$1,107,423	-44.5	-\$2,502,786	-107.3
Mining	\$0	0	-\$7,111	0
Construction	-\$79,581	-1.4	-\$217,859	-3.2
Trans/Utilities	-\$562,003	-4.2	-\$779,375	-5.3
Ret/Whl Trade	-\$1,570,217	-26.5	-\$2,367,098	-45.4
Fin/Ins/Real Est	-\$1,194,235	-4.7	-\$2,344,031	-12.5
Services	-\$621,941	-10.9	-\$1,544,073	-26.7
Government	-\$276,523	-2.8	-\$310,450	-3.8
Farm	-\$16,363,727	-157.6	-\$22,625,485	-236.6
TOTAL	-\$22,048,819	-254	-\$33,496,590	-444.7

40% Reduction in Irrigated Acreage

	Ichaway Region		Spring Creek Region	
	Output	Employment	Output	Employment
Manufacturing				
Non-Durables	-\$148,174	-1.3	-\$724,498	-3.6
Durables	-\$216,052	-1.2	-\$336,546	-1.7
Non-Manufact.				
Ag Services	-\$1,476,564	-59.5	-\$3,294,180	-141.1
Mining	\$0	0	-\$9,459	-0.1
Construction	-\$106,108	-1.8	-\$289,287	-4.4
Trans/Utilities	-\$749,338	-5.6	-\$1,034,991	-7
Ret/Whl Trade	-\$2,093,621	-35.4	-\$3,148,931	-60.4
Fin/Ins/Real Est	-\$1,592,313	-6.3	-\$3,126,011	-16.6
Services	-\$829,255	-14.5	-\$2,061,299	-35.6
Government	-\$368,697	-3.8	-\$413,899	-5.1
Farm	-\$21,818,306	-211	-\$30,172,949	-320.8
TOTAL	-\$29,398,430	-341	-\$44,612,051	-596.4

Backlog Increase in Irrigated Acreage

	Ichaway Region		Spring Creek Region	
	Output	Employment	Output	Employment
Manufacturing				
Non-Durables	+\$51,056	+0.6	+\$212,800	+1.2
Durables	+\$74,446	+0.5	+\$99,355	+0.6
Non-Manufact.				
Ag Services	+\$604,332	+24.5	+\$959,078	+46.6
Mining	\$0	0	+\$2,851	0
Construction	+\$43,428	+0.7	+\$83,649	+1.5
Trans/Utilities	+\$306,690	+2.3	+\$302,677	+2.3
Ret/Whl Trade	+\$856,883	+14.6	+\$946,823	+19.9
Fin/Ins/Real Est	+\$651,706	+2.6	+\$879,247	+5.4
Services	+\$339,400	+6	+\$570,261	+11.7
Government	+\$150,901	+1.6	+\$115,282	+1.7
Farm	+\$8,929,848	+86.6	+\$9,288,415	105.8
TOTAL	+\$12,032,259	+139.8	+\$13,460,439	+196.6