TO

Most folks know the alphabet from A to Z, but when it comes to A (for Agriculture) and Z (for Zellwood Drainage and Water Control District), many are not too well informed on this A - Z combination.

The purpose of this special brochure is to clear up many misconceptions commonly associated with this special farming area and its relationship to Lake Apopka.

ZELLWOOD DRAINAGE AND WATER CONTROL DISTRICT

HOW?

WHAT?

WHEN?

It is amazing just how few folks really know the true facts about the District and its organization.

Many Orange Countians think it is a government project.

Still others think its creation lowered the water level of Lake Apopka and surrounding lakes.

These are two common misconceptions so--- let's get all the facts.

ZELLWOOD DRAINAGE AND WATER CONTROL DISTRICT

HOW?

Q. How was it created?

A. The District is a municipal corporation organized under the provisions of a special act of the state legislature (Chapter 20715).

WHEN?

When did it come into being?

A. It became law in 1941. Unit #1 (approximately 2589 taxable acres) was completed in early 1942, and Unit #2 (approximately 6000 acres) was completed in 1943.

WHO AND WHAT ASPECTS?

Q. Who designed and financed project?

A. The original design of the improvements for the District was prepared by a Mr. George B. Hills, and on the basis of Mr. Hills' plans, application was made to the Reconstruction Finance Corporation for money to implement the plan. A loan from the RFC was granted in the original amount of $142,500 to Unit #1 and $257,500 to Unit #2. During the course of this construction, additional funds became necessary and the RFC granted a supplemental loan in the amount of $87,500.

FINANCIAL CHANGES

Q. Who was the principal owner?

A. Mr. Richard Whitney owned a good portion of the District because of a pledge of his properties for loans from a New York bank. When Mr. Whitney encountered financial difficulties in repaying these loans, the bank sent down their trouble shooter, a Mr. John F. White, to assist them in liquidating these properties. Mr. White bought out the interest of the bank (mid 1945) and then requested a loan of $200,000 from Connecticut Mutual to create the Florida Humus Company, of which he became President.

NEW ERA

Q. Is there still RFC funds involved?

A. Mr. W. T. Cox, of Connecticut Mutual, made an intensive study of the area in 1945 and 1946, and through his recommendations his compnay bought out of the RFC in 1946 $487,500 of 4% Zellwood bonds. This purchase was made at par and represented all of the securities of the Zellwood Drainage and Water Control District. An additional loan of 5% serial notes was made by the Connecticut Mutual to the District in the amount of $140,000 in 1960. This additional loan was necessary because of the drainage to the dikes caused by the high water during the rainy season of 1959-60. The farmers did not call on the county or the state to finance these repairs, but obligated themselves to pay the notes back over a period of years. At the present time, there are $430,000 of bonds, outstanding (1963).

T A X E S ?

Every agricultural group reports they have more taxes than they can say grace over. What about the Zellwood Drainage and Water Control District - do they have taxes?

Y E S

Not only do they have county taxes but they have special taxes within the District.

So---

Whether they farm or not or whether the crop returns are high or low, the taxes go on as usual. That's farming!

ZELLWOOD DRAINAGE AND WATER CONTROL DISTRICT

Q. Who maintains the roads, bridges, levees, canals, etc.?

A. The main road through the District is a designated state road and as such the county has supplied equipment and hauled clay for this road. Except for this, the District, by special taxes, does provide for its own roads, bridges, levees and canals.

Q. What are the taxes within the District?

A. For 1962 the taxes were as follows:

	Unit #1 (per acre)	Unit #2 (per acre)
Bonds	$ 1.95	$ 3.39
Interest	1.48	2.83
Maintenance of Operation	10.69	8.78
Total District Tax	$14.12	$15.00
County Tax	3.83	3.83
Total All Taxes Per Acre	$17.95	$18.83

Q. Who is the Engineer for the District?

A. Mr. Arch Hodges is the District Engineer and he is directly responsible to the Board of Supervisors for the needs of the District.

O.K. - The Zellwood Drainage and Water Control District is a municipal corporation under the laws of Florida.

O.K. - They tax themselves accordingly to maintain and operate the District but --- How does this area affect Lake Apopka?

First - One needs facts on Lake Apopka.

Second - These facts must be then correlated with facts about the District.

Third - All of which leads to opinions based on facts rather than fantasy.

Here's the "count down" on facts about Lake Apopka and the Zellwood Drainage and Water Control District.

FACTS ABOUT LAKE APOPKA AND ITS RELATIONSHIP WITH THE ZELLWOOD FARMING AREA

Q. What is the deepest area in Lake Apopka?

A. According to the map prepared by the Lake and Stream Survey of the Fisheries Division of the Game and Fresh Water Fish Commission, a 15 ft. deep spot is recorded near Oakland on the extreme south side of the lake.

Q. What is the average depth of Lake Apopka adjacent to the muck levee?

A. Two feet.

Q. What is the average depth of the main body of Lake Apopka?

A. The main body of Lake Apopka appears to be between 4' and 6' with occasional deep spots of 8' to 10'.

Q. Roughly what is the size of Lake Apopka?

A. Approximately 48 square miles (31,000 acres).

Q. What is the area of the Zellwood Drainage District?

A. 9,000 acres.

Q. Are there other farming areas adjacent to Lake Apopka, but <u>not</u> in the <u>Zellwood Drainage District</u>?

A. Yes, there are some 9,000 additional acres outside of the Zellwood Drainage District. The Dudas have the largest farming area outside of the Drainage District. Their farming area is located in the Lake Jem area of Lake County.

Q. What separates the Zellwood Drainage District from Lake Apopka?

A. There are approximately 10 miles of muck levee between the farming area and Lake Apopka.

Q. What is the average height of Lake Apopka?

A. The average height of Lake Apopka varies from about 66.1 feet in May and June to 67.0 feet in September based on the average of the month-end elevations for the years 1946-55.

Q. What is the average elevation of the Zellwood farming area?

A. The Zellwood farming area is approximately 64½ feet M.S.L. This means that the farming area is about 2½ feet below the average level of Lake Apopka.

Q. What is the average height of the levee?

A. The Drainage District maintains their levee at 70 feet elevation.

Q. Can the level of Lake Apopka get too low for the Zellwood farming interests?

A. Yes, when the lake level gets below 65 feet M.S.L., the District has difficulty in obtaining water for the canals within the District. When the lake level is above 65 feet, water supplies can be obtained by gravity and no pumping is required.

Q. At what high lake level do the Zellwood farming interests get concerned?

A. On a rising lake level after it passes 67 feet M.S.L., the vegetable growers begin to get concerned.

Q. Why should farming interests be concerned with a lake level above 67 feet M.S.L.?

A. According to engineer's studies, the only man-made method of slowing down the rise of Lake Apopka is through the use of the Apopka-Beauclair spillway. If not a drop of rain falls on Lake Apopka, it would take three weeks of around the clock functioning of the Apopka-Beauclair spillway at a wide open position to lower the lake level of Apopka one foot! The maximum daily discharge through the control was 754 cubic feet per second 3/19/60 = 46,000 acre feet per month - or 21 days for one foot from 31,000 acres.

Q. What factors contribute to a lower lake level?

A. 1. Evapotranspiration (lots of vegetation in lake).

2. Runoff through the Apopka-Beauclair lock and spillway.

Q. Which of these factors causes the greatest lake level loss?

A. Average annually approximately 50" is evaporated from Lake Apopka.

Q. How is Lake Apopka recharged?

A. 1. By rainfall (average approximately 52" a year).

2. By seepage of ground water from surrounding areas.

3. Artisan Floridan aquifer.

4. Small amount of surface inflow.

Q. When were lake level records begun on Lake Apopka?

A. Back in 1936, the U. S. Corps of Engineers began recording monthly lake levels on Lake Apopka. Since September 18, 1942, continuous record has been obtained by the U. S. Geological survey. The high that year was 69.3 in October and the low 68.4 in May.

Q. When were daily lake levels begun?

A. On September 18, 1942, daily lake level records were begun. On that date the level was 67.77".

Q. What were the highest lake levels recorded during the wettest years?

A.

Year	Rainfall	High Lake Level	Date
1947	67.47"	68.90'	September 27th
1953	65.85"	68.32'	October 9th
1960	68.74"	68.43'	March 20th
1960	68.74"	68.44'	October 2nd

Q. What were low lake levels during dryest years?

A.

Year	Rainfall	Low Lake Level	Date
1938	34.55"	66.5'	May, December
1942	41.29"	67.07'	December 1st
1943	39.61"	66.26'	June 27th
1956	43.91"	64.04'	August 13th
1961	41.78"	65.13'	June 21st

When was the Apopka-Beauclair lock and spillway installed?

A. The 1953 Legislature approved the legislation to create this facility. Work was begun in 1954 and the structure was completed in 1955.

SOME FALLACIES ASSOCIATED WITH THE LAKE APOPKA-ZELLWOOD MUCK SITUATION

1. Some folks say they would have a higher lake level if the levee had never been constructed to confine the lake within its present boundaries.

   The lake level in years of 1938, 1939, 1940 and 1941, which were prior to the construction of the levee, do not reflect any higher lake levels than those of today.

   In fact, reducing the lake surface from this 9,000 acre muck area reduces the rate by which water is lost due to evaporation. Authorities say evaporation is greater in marshy areas than in open water areas. Lake Apopka's annual loss to evaporation is approximately 50".

2. Some folks say a larger lake surface area would offer greater cold protection to surrounding areas.

   This statement is questionable because the depth of water is a decided factor. It could just as logically be argued that the black muck would absorb and release a greater volume of latent heat as would an equal area of water.

   Some might say when an area of lake is reduced by 9,000 acres, the remaining lake area arises. Thus a deeper lake and more cold protection.

3. During exceptionally low lake level years, the Zellwood growers frequently get blamed for lack of rainfall and corresponding high evapotranspiration losses. As any rational thinking individual well knows these conditions are not created by the Zellwood growers.

SOME FALLACIES ASSOCIATED WITH THE LAKE APOPKA-ZELLWOOD MUCK SITUATION, con't

4. Periodically there are times when certain conditions cause a high population of rough fish (gizzard shad) to mysteriously die. Who gets the blame? You guessed it, the Zellwood farmers! (Someday they may also get the blame for "red tide" conditions in the Gulf.)

5. Even when fishing is the poorest --- guess who gets the blame and why? -- The critics claim the agricultural chemicals (sprays and fertilizers, etc. drifted into the lake and run the fish away.

6. Another common falacy is a great many folks think the Zellwood growers are suit case farmers - the variety who come and go. Practically all of the growers are local residents and over three-fourths of them have owned their land for over 10 years.

AN UNUSUAL CONSERVATION PROBLEM

The organic Everglades mucky peat, soils of the Zellwood Drainage and Water Control District are something like the case of having your cake and eating it at the same time.

Once these soils are drained and intensely farmed they are subjuect to subsidence at the rate of 1"-2" per year because of oxidation, mechancial compaction and wind erosion.

To reduce these losses and insure a longer life for these highly productive areas, the growers should practice flooding their land when the land is idle.

Associate Extension Engineer, Dalton Harrison, of the Florida Agricultural Extension Service points out -- "the subsidence of the organic soils in the Everglades is approximately 1.50 inches per year when the depth to the water table is 24 inches; whereas, if we reduce the depth to the water table to 3 inches or less, our annual subsidence is zero. As a result, if we flood for 3 months each year, we are, in effect, reducing our annual subsidence by 25 per cent."

Dr. R. V. Allison, Fiber Technologist, with the Everglades Experiment Station, Belle Glade has recorded a stricking example of this problem with an Everglades peat soil profile at the Everglades Experiment Station.

In 1912 this profile was 13 feet deep; in 1929 it was $6\frac{1}{2}$ feet and in 1952 it was $4\frac{1}{2}$ feet! This subsidence loss amounted to $8\frac{1}{2}$ feet in 23 years!!

Dr. Allison has predicted that within less than 50 years there will be no soil left in the muck rich Florida Everglades that is suitable for growing crops.

Good land use management will determine the future productivity of the farming area of the Zellwood Drainage and Water Control District.

ZELLWOOD SOIL SERIES

Q. How do soil scientists classify the soils of the Zellwood Drainage and Water Control District?

A. These soils are classified by soil scientists as Everglades mucky peat soils.

Q. How were they formed?

A. These soils were formed from the remains of sawgrass and other sedges, lilies, myrtle bushes and grasses.

They have a black or very dark brown surface layer of fibrous and non-fibrous mucky peat that overlies brown to dark reddish-brown, fibrous peat.

Q. How deep are these organic soils?

A. The thickness of these organic materials range from 12 to 96 inches.

Q. How are these soils mapped in the Zellwood Drainage and Water Control District?

A. Soil Surveyors have recorded these Everglades mucky peat soils into 4 groups according to the depth of organic material.

1. Everglades mucky peat, shallow phase - 12"-36".
2. Everglades mucky peat, moderately deep phase - 36"-60"
3. Everglades mucky peat, deep phase - 60"-96".
4. Everglades mucky peat, very deep phase - 96"-180".

Q. What is their fertility level?

A. These soils have a fairly large amount of nitrogen but are low in other essential plant nutrients.

Q. What is their water holding capacity?

A. The spongy nature of these soils accounts for their great water holding capacity.

When the soil is drained adequately, the organic horizons are rapidly permeable to air and moisture and are readily pervious to roots.

TODAY'S ECONOMIC YARDSTICK ASKS:

How much are you worth?

How many people do you employ?

Is your product essential to the country?

Is it an interstate commodity?

The giant citrus industry generally gets the major share of the agricultural publicity so as a rule the average layman is not too well informed on the economics of the vegetable industry in the Zellwood area.

ZELLWOOD AREA - ACRES AND PRODUCTION, 1961-62

The Zellwood cropping season falls into the major categories - fall and spring crops. Some of the crops are classified as major crops because of the acreage involved. Others such as parsley, chinese cabbage, beets, carrots, turnips, dill, etc., are not extensively grown through the area, and, therefore, are of minor importance.

MAJOR CROPS 1961-62 AND THEIR APPROXIMATE VALUE

Crop	Acreage	Value
Snap Beans	2,825	$601,350
Cabbage	550	$516,375
Celery	1,240	$2,935,560
Sweet Corn	4,500	$1,863,200
Escarole and Endive	1,700	$1,277,600
Lettuce	350	$225,000
Radishes	4,500	$876,000
Spinach	1,000	$137,000

During the 1961-62 season over 16,000 acres of vegetable crops were grown in the Zellwood area. These crops reflected a value well over $8\frac{1}{2}$ million dollars.

AGRIBUSINESS SCOPE

When the USDA, through its Crop Reporting Service, releases a report that some 16,000 acres of Zellwood crops reflected an 8 1/2 million value, this is not the complete economic impact to the county.

Yes, this 8 1/2 million dollars is new capital brought into the county from the out-of-state sale of these products but --- WHAT LOCAL EXPENDITURE DID IT REQUIRE TO CREATE THIS NEW SOURCE OF INCOME?

Only about 9 of the approximately 27 farms returned a special questionnaire to ascertain these facts. Even though these statistics are not complete (perhaps 50%) they do reflect some mighty important points on these 9 farms.

PERMANENT FARM EMPLOYEES	129	
TEMPORARY FARM EMPLOYEES	1,842	(85% are local & very few migratory)
TOTAL ANNUAL WAGES	$1,336,000	

ANNUAL EXPENDITURES

FERTILIZER MATERIALS	$ 289,000
SEED	$ 121,000
SPRAY MATERIALS	$ 389,400
CONTAINERS	$ 75,000
EQUIPMENT	$ 169,000

These annual expenditures and payrolls are not complete for the area, but they do reflect the size and scope of what does take place to produce these crops.