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Biodiesel Plant Development Seminar

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Biodiesel Operations

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West Central History

- West Central was incorporated in 1933 in Ralston, Iowa, which is still its headquarters
- West Central is governed by 9 elected board members and 2 appointed associate board members

West Central History

West Central’s full-service 3,500+ farmer-owned cooperative is headquartered in Ralston, Iowa. West Central markets products throughout most of North America and to several other foreign destinations.

Operating divisions:
- Grain, agronomy, feed, soy processing & administration
Annual Operations
- West Central employs 228 people
- Grain - markets 72 million bushels
- Agronomy - joint venture with Agriliance
- Feed - processes over 115,000 tons
- Soy Processing - processes 8.4 million bushels of soybeans and processes 90 million pounds of soy oil into methyl esters

Sales History (millions)

SOY PROCESSING
- SOY BEANS
  - Meal
  - Flour
  - Oil
  - Lecithin
  - Biodiesel
  - Other Oil Sources
  - Glycerin

Soy Nutrition Products
- SoyPLUS® (Dairy cow protein)
- SoyChlor® (Dairy cow treatment)
- Lecithin
- Soy Flour
West Central Biodiesel Plant

West Central's 12 million gallon capacity biodiesel plant is the first continuous-flow biodiesel plant in the United States. The biodiesel plant processes 90 million pounds of the co-op's soybean oil into biodiesel and other methyl ester products each year.

Why Biodiesel?

- Reduce Emissions
- Operational Benefits - Lubricity
- Energy Balance
- Expanded Use of Soy Crops
- Nation's Energy Goals

Reduce Emissions

2000: Biodiesel becomes only alternative fuel to meet EPA Health Effects Testing under the Clean Air Act

- Carbon Monoxide: 50% lower than petroleum diesel
- Particulate Matter: 30% lower than petroleum diesel
- Hydrocarbons: 93% lower than petroleum diesel
Operational Benefits

- B2 has up to 66% more lubricity than #2 diesel
- Exceptional lubricity = longer engine injector life
- Superior engine performance compared to other alternative fuels
- Use in unmodified diesel engines
- Doesn’t require specialized mechanics to service engines

Energy Balance of Biodiesel

- Units of energy produced for 1 unit of energy consumed *
  - Petroleum: 0.88 units produced
  - Ethanol: 1.62 units produced
  - Soy Biodiesel: 3.24 units produced

* USDA

Expanded use for Soy Crops

1 bushel of soybeans creates 1.4 gallons of pure biodiesel (B100)

Nation’s Energy Goals

Increase energy independence with a domestically produced renewable resource
USES FOR BIODIESEL

- U.S. MILITARY
- UNDERGROUND MINING
- SCHOOL BUSES
- HOME HEATING
- AGRICULTURAL SECTOR
- CONSTRUCTION
- MUNICIPALITY FLEETS
- FERRIES

RENEWABLE ENERGY GROUP

- Build turnkey biodiesel plants
- Assist in site selection
- Process design and engineering
- Construction and installation
- Computerized process controls
- Stringent process safety management

RENEWABLE ENERGY GROUP

- Laboratory set-up
- Safety training
- Real-world production training
- Start up services
- Research and Development
- Updates on process

- Combined resources of leaders in their industries
- Design, build and operating the largest biodiesel plants in U.S.
- Producing and marketing biodiesel since 1996
- 60 years of process engineering experience
- High quality construction expertise
- Practical processing experience
- Providing quality product specifications
MANAGEMENT

- **General Manager**
  - Manage and oversee plant administration and operations
  - Implement and oversee business plan
  - Direct, promote and coordinate personnel
  - Maintains relationships with investors
  - Includes financial and accounting systems

- **Production Manager**
  - Plan and schedule biodiesel production
  - Oversee Quality control
  - Manage all facility and equipment maintenance
  - Assist with budgeting and control labor costs and plant expenses
  - Implement processing changes, new technologies and other production projects

PROCUREMENT

- **Chemicals**
  - Procure all basic chemical inputs needed for production, including catalyst
  - Negotiate for discounts where obtainable

- **Fats and Oils Feedstock**
  - Provide analysis and audit feed stock suppliers
  - Purchase feed stocks to meet production schedules
  - Provide transportation logistics and scheduling of feed stock deliveries

SALES & MARKETING

- **Biodiesel**
  - Transportation and logistics
  - Market analysis of biodiesel supply & demand
  - Invoicing and accounts receivable management
  - Market access to West Central distribution channels

- **Co-Products**
  - Glycerin
  - Fatty Acid

SUMMARY

- **West Central**
  - **Marketing/Procurement Value Package**
    - National and International customer base
    - Multiple feed stock origination
    - Extensive distribution network
    - Nationally recognized brand name
  - **Experience**
    - Producing and marketing biodiesel since 1996

- **REG**
  - **Innovative Technology**
    - Continuous flow process
    - Continual research and development
    - Environmental systems to insure low emissions
    - Highest safety standards
    - Cost effective processes
  - **Experience**
    - Design, build and operate the largest biodiesel plants in North America
Thank you