

Ethanol To Play Major Role

WASHINGTON, D.C.— To most Americans, the 1950's in Southern California meant sun, surf, and the Beach Boys.

But to the teenaged Neale Shaner, who lived there during the school year, it meant smog.

"Some days, the smog was so bad, we'd be kept inside during phys. ed. class. I couldn't wait for the end of school, to return to Nebraska, where my grandfather had his farm, and get away from all that contaminated air," he said.

Today, Shaner spends his working days on that same farm in Fort Calhoun, Neb. the one his family has owned for more than 100 years.

"It's a challenge, being a farmer," he said. "There's the outdoors...working on your own...having the chance to appreciate nature...I can't think of anything more satisfying than looking out and seeing a field of corn or soybean growing that you're responsible for.

"As a boy, I liked the idea of being part of the industry that produced the food Americans eat. I never thought, though, back then, that the corn I was growing would also help clean up the air we breathe."

Now, as gasoline refiners prepare for the introduction of the U.S. Environmental Protection Agency's RFG (Reformulated Gasoline) program in some four dozen metropolitan areas around the country, corn stands to play a greater role than ever before in this country's environmental efforts, due to the development of a product known as ETBE (ethyl tertiary butyl ether).

ETBE is an oxygenate produced by combining corn-derived ethanol with natural gas by-products. Blended with

gasoline, oxygenates increase the fuel's oxygen content, which makes it burn more cleanly. This "cleaner burn" helps to reduce emissions of the harmful pollutants associated with conventional gasolines.

Since all the oxygen in ETBE comes from ethanol, it takes the same amount of ethanol to "oxygenate" a gallon of gas with ETBE as it does using ethanol alone. However, when ethanol is blended into ETBE, some of its properties change. ETBE burns as cleanly as ethanol, but since it is a petroleum hybrid, it is 100 per cent compatible with gasoline—so, unlike ethanol, it can be transported via the pipeline systems that supply gasoline to much of the country. And instead of increasing gasoline's evaporation rate—a characteristic of ethanol that had limited its use—ETBE reduces it.

For American corn farmers and ethanol producers, ETBE is the breakthrough they've been waiting for.

Ever since 1979, when ethanol was first used to enhance octane and extend fuel supplies, farmers' hopes for the corn-derived product have sprung eternal. However, ethanol's chemical properties have limited its use to splash blending as gasohol. Wider distribution via the major pipeline system supplying such fuel-hungry gasoline markets as the Northeastern United States was prevented by ethanol's affinity for water.

Growth beyond local splash blending markets was further limited by increased restrictions on vapor pressure, including stringent RFG criteria intended to reduce air pollution caused by evaporation as well

as exhaust emissions. Since ethanol increases gasoline's evaporation rate, it appeared that ethanol's role could be further diminished by RFG requirements. Yet paradoxically, corn farmers and ethanol producers now see that same low vapor pressure requirement as opening the way to new markets for ethanol.

"ETBE is the key," said Shaner, a former president of the Nebraska Ethanol Board. "Vapor pressure was a major hurdle to California and other warm weather markets. But now that ethanol can be used to create an oxygenate that actually lowers vapor pressure, those earlier restrictions on ethanol's potential markets no longer exist. We now have an oxygenate that makes as much sense to refiners as it does to farmers."

According to Gary Goldberg, president of the American Corn Growers Association, ETBE will allow farmers to more fully benefit from the EPA's ROR (Renewable Oxygen Requirement), which calls for 30 per cent of the oxygenates used in reformulated fuels to be derived from renewable feedstocks, such as corn.

"The figures we've looked at indicate a sizeable increase in the bushels of corn converted into ethanol. Right now, we're only using about 400 million bushels a year—but we expect that to increase to about 750 million bushels to meet



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RFG provisions. And that's because ETBE is the only oxygenate out there that can meet both vapor pressure and fuel renewability requirements."

But corn farmers and ethanol producers still have work to do before growing into these new markets, said Shaner. "There's a big job to do in educating the public about ethanol and ETBE; you have to show people that the benefits are really there. And not just their environmental benefits, which have been demonstrated over and over again, but their positive impact on the farm economy, how they make our country more energy-self-sufficient, and how they create more jobs."

One significant hurdle still to be overcome, said Goldberg, is the current federal income tax credit structure. "The problem of tax credits has to be addressed; the way the code is currently written, the only one who gets a tax break from using ETBE is the refiner who sells reformulated gasoline into the marketplace. While we support this credit, the fact is that the current tax status of many refiners will prevent them from taking advantage of it. Because of this, we feel that only the way to ensure that the tax code

supports the commercial viability of ETBE is to broaden this tax credit to include ETBE producers.

"It should be clear that the future of the ethanol industry lies in full commercialization of ETBE. Without that, we are looking at flat growth for the ethanol industry and for corn consumption for years to come. ETBE is the avenue to whole new markets and unprecedented growth. But we have to make sure that government, the public, and the media, and corn farmers understand what is at stake.

"Everybody benefits. Refiners finally get a renewable oxygenate that they can blend at the refinery, ensuring greater quality control and efficiencies. Corn and ethanol producers benefit from expanded markets, which in turn reduces the need for government subsidies to corn farmers—a benefit to taxpayers. And we all benefit from a cleaner environment.

"The way I see it," Goldberg said, "ETBE is the brass ring for which corn growers have been waiting for more than a decade. Right now, we have a simple choice: we can either grab this opportunity and make it work for us—or we can ignore it and let it pass us by."



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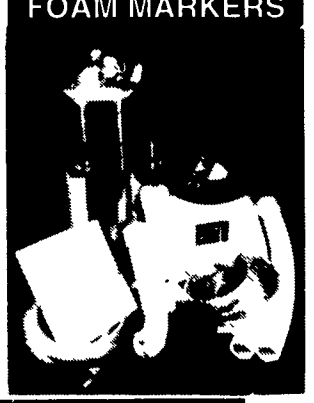
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