

Researchers aim for tasty grass-fed beef

COLUMBIA, Mo. - University of Missouri food scientists have identified compounds that give grass-fed beef its "off-flavor."

Now it's up to plant geneticists to select and breed for better grass (tall fescue) that would put the steaks from a fescue-fed steer on a par with its corn-fed cousin.

This is good news for beef eaters and farmers alike. But it's not fast breaking news.

We're talking basic research. And time.

Let's start at the beginning.

Missouri is famous for tall fescue. The native grass is hardly enough to take scorching summers and severe winters and keep on coming back.

Over time, plant breeders have improved fescues and developed hybrids. Missouri leads in the production of tall fescue seed.

Nobody knows for sure how many acres of tall fescue are grown in Missouri. Guesses range between 2 million and 4 million acres. It's the backbone of Missouri's cattle industry.

But cattle never do well on tall fescue alone. Standard procedure is for farmers to feed their cattle some grain along with the fescue. They either supplement the grass with grain as cattle grow, or they take them off fescue entirely and "finish" them with about three or four months of grain feeding in a feedlot.

Research shows cattle just plain gain better on grain.

Besides, any connoisseur can tell you that grass-fed beef just doesn't quite stack up to the corn-fed kind when it comes to juiciness and flavor.

University of Missouri-Columbia

food scientists set out to find out why. Harold Hedrick and Milt Bailey took samples of fescue-fed beef and compared the meat from those from cattle getting a ration of grain and fescue and another group started on fescue and "finished" with 120 days in a feedlot where they ate all the grain they wanted.

After some highly scientific analysis, it was pretty clear why fescue-fed beef wasn't served at the finest steakhouses.

"We identified 36 compounds that effect flavor. Several of those that give beef its undesirable taste were found in much higher amounts in fescue-fed beef cattle than in those on corn and grain," said Milton Bailey, UMC food scientist.

Bailey and Hedrick said fescues were higher in "low molecular weight aldehydes" which, they said, are "notorious for producing off-flavors in many foods with fat in them."

One of these, hexanal, is prominent in the oxidization of lipids (fats) and is used by biochemists as a marker to identify off-flavor.

Bailey and Hedrick also pointed to three specific compounds found in high amounts in the fat of fescue-fed beef which are related to undesirable flavor.

One is octadecane, a hydrocarbon formed by the degradation of fatty acids.

Another is decalactone, formed from carbohydrates and lipids.

And a third is diethylphthalate which, the scientists said, is either a "metabolic end product or an environmental contaminant."

"We don't know its source. It

could just be metabolically present in the grass itself, or it could be there because grass has a lot of surface area and can pick up environmental contaminants," Bailey said.

Whatever the case, Bailey and Hedrick have given a big boost to the scientific effort aimed at improving fescues and beef production efficiency.

"We plan to give this information to grass breeders in hopes they can adjust quantities of these compounds and thereby improve fescue quality," said Hedrick.

"We know it can be done. Scientists have already done it with peanuts. They have bred

plants with fewer precursors that cause undesirable flavor."

Breeders might also cross fescue grasses with rye, a grass-like relative which doesn't produce off-flavor beef. In fact, one fescue variety already developed (Kenhy) is the result of such a cross.

"In our studies, we only looked at the fescue variety Kentucky 31. It's possible that beef produced from Kenhy or Missouri-96 (a variety released by the Missouri Agricultural Experiment Station just a few years ago) would have smaller amounts of compounds that produce undesirable flavor," Hedrick said.

When Hedrick and Bailey talk about "off-flavor," they are admittedly speaking in subjective terms.

Most people wouldn't throw away beef from a fescue-bed steer; they just prefer the cornfed kind.

But producers and scientists are always looking for a better way. With the energy crunch, it would be nice if farmers could grow tasty beef quickly and efficiently on fescue alone.

So the scientific quest for the best beef from the best grass continues. Thanks to research by Hedrick and Bailey, it has been given a good nudge in the right direction.

Ag arena gets \$5 grand boost



Officials of Penn State's College of Agriculture Alumni Association, at their summer meeting at Ag Progress days, contributed \$5,000 to the Ag Arena Fund and pledged an additional \$15,000 over a three-year period. Francis Alexander, second from right, immediate past president, presents check to Obie Snider of Imler, a member of the fund raising committee. At left is Samuel Smith, dean of the Col-

lege of Agriculture; second from left, Michael Balas, of New Holland, association president; and right, Darwin Braund, research director for Agway, Inc., Syracuse, New York, also a member of the campaign committee. The 190,000-square-foot facility will provide for classrooms and laboratories as well as staging various shows and events.

Motorists can keep deer

HARRISBURG — Pennsylvania motorists are now permitted to

retain deer killed accidentally by vehicles on the state's highways.

Under a recently-adopted Game Com-

mission policy, any Pennsylvania resident who is the operator of a vehicle or who is a passenger in a vehicle is

eligible to claim the carcass of any deer accidentally killed on any road in the state by a vehicle.

Those eligible to claim the carcass include the operator of the vehicle involved, any passenger in that vehicle, or the operator of any occupant of a vehicle which happens upon the deer.

The person who picks up the deer must report the incident to a Game Commission officer within 24 hours. The message may be left on the officer's telephone recording device. The officer will then issue a permit for the deer, good for up to 120 days.

Permits to retain the venison indicate how the deer shall be utilized, what is to be done with the head and hide, and any other conditions required by the issuing officer.

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