

Trout "surprises" found in stream studies

PENN STATE — Contrary to opinions of many fishermen, brown trout get as much food during midday as they do in the evening. That's one of the surprising findings reported from the Cooperative Fisheries Research Unit at The Pennsylvania State University.

"The only basic difference in feeding is that brown trout become a bit more active as night approaches and feed more readily on different types of organisms,"

says Robert A. Bachman, doctoral candidate in ecology at Penn State. "The increased evening feeding is especially noticeable if there is a hatch of mayflies nearby," he adds.

Brown trout use a "sit and wait" feeding strategy, Bachman reported. The fish simply choose a place to intercept food drifting by. He said most of the feeding sites are in rather shallow water, lack overhead cover, and generally are

associated with a rock or similar obstruction to water flow.

Bachman identified, photographed, and kept records on over 100 wild brown trout from April through November for three seasons in camouflaged "trout blinds" on Spruce Creek in Huntingdon County. His studies set something of a world record in observing a single group of wild trout — without handling or marking the fish. The work is now completed.

He recorded feeding peaks of 200 to 300 times per hour frequently between noon and 2 p.m. in bright sunlight during July and August. That's the time, he noted, when textbook brown trout are supposed to be snoozing under a stream-bank.

Equally surprising, he found that over 95 percent of the brown trout in Spruce Creek forage for feed in sites without cover during 92 percent of the daytime. People generally believe that trout feed only where there is plenty of cover.

Location and composition of the Spruce Creek trout population has been surprisingly stable. The fish migrate or move very little. Individual trout return to the exact same sites month after month, year after year. Significant migration occurs only during the fall spawning season. Of 18 trout observed in late summer of 1978, 15 returned to the same foraging sites and home ranges the following spring. In 1980, 11 or 14 trout returned from the previous fall.

"Behavior of fishermen disturb wild brown trout from their normal midday feeding," Bachman stated, observing that "in the evening you certainly can get much closer to brown trout without frightening them."

Feeding site quality is also the key to determining the number of trout in a stream and how fast they grow. This discovery throws "cold water" on the theory that overhead cover decides the number of trout in a stream.

Bachman found that overhead cover is used mostly by fish when danger threatens. At such times, cover is important, he affirmed. Trout will take cover when an angler makes a clumsy approach, a woodchuck swims across the stream, or a heron flies over. But in 20 minutes, the trout generally are back to their normal routine.

From his intensive observations,

Bachman could predict (within a quarter of an inch) where a trout's head would come to rest after the fish had been feeding. Usually such position would be next to, above, or below a certain rock or submerged object.

Bachman knew the trout in his section of Spruce Creek so well that each one had a number and often a name such as "Old Yellowfin." From photographs he could tell how much each trout had grown from year to year.

He watched each fish for 15 minute intervals, punching into a computer called the "Trout Tracker" everything about a particular fish such as fighting, feeding behavior, position changes, and hiding. When a trout retrieved an insect, or stirred up some silt, it was recorded. The observations continued for 10 to 12 straight hours daily.

"Rigid territoriality in the traditional sense was not evident among the brown trout in Spruce Creek," Bachman stated. "Instead, we found that the fish share their time in feeding sites. There is, however, a hierarchy of dominance. If three fish use the same site, the largest one dominates but all three share the area. And there goes another myth about trout behavior," he added.

A brown trout doesn't tolerate other fish feeding just upstream where the intruders could interfere with the first trout's foraging. When two trout fight for the same location, the offensive fish depresses its dorsal fin and pulls the pectoral fins into its sides. The defensive fish becomes as "porcupine-like" as possible with all fins erect. In a few seconds, the action is usually finished.

At times this results in a "domino" effect, with the loser moving. This causes another short-term change in positions up and down the stream.

Proper weights and tires maximize tractor efficiency

NEWARK, Dela. — As spring tillage operations progress, there are some tremendous opportunities to conserve fuel through sound energy management.

Since the tractor uses most of the on-farm energy involved in crop production, it's especially important to increase tractor efficiency, says Delaware extension energy program coordinator Ronald C. Jester.

Energy efficiency is good business, he says. Any time you can accomplish more work with less time and energy, you reap higher profits.

With today's diminishing fuel supplies and escalating prices, energy management will allow you to get the most out of your tractor

Most of us think of tractor sizes in terms of rated power take-off horsepower. While most tractors have been tested to determine performance under standard conditions, few people realize how

much power can be lost during field operations.

For example, a 100 PTO hp tractor delivers, after transmission losses, about 96 horsepower to the rear axle. Then, if weighted correctly, it produces about 75 drawbar horsepower in firm soil.

For sandy soils, this same tractor would only produce 50 drawbar horsepower due to greater tire slippage — a significant 50 percent below PTO horsepower. With inadequate weighting on sandy soils, slippage will be greater and consequently the drawbar horsepower delivered in the field will now be 40 percent or less of rated PTO horsepower.

The obvious question is what happened to the 60 percent horsepower that was lost?

The engine, no doubt, consumed the energy to produce 100 horsepower and the transmission applied it to the rear axle, but only 40-45 percent of the original 100 horsepower was available. The

power was lost to slippage and rolling resistance.

By matching weight and tire size to the tractor's power and operating conditions, maximum efficiency can be achieved.

Choosing the right amount of weight is fundamental. Too little weight allows excessive slippage while too much weight increases compaction and rolling resistance.

The primary factors that dictate weight requirements are implement draft, type of implement and soil conditions. Tractors should be weighted to obtain a wheel slippage between 10 and 15 percent. In this range, a tractor can achieve true maximum drawbar power and fuel economy and also keep tire wear at acceptable levels.

Tire size is another major factor in determining tractor performance and ultimately energy efficiency. First of all, the tire must be able to carry the tractor's weight.

Tire inflation is a related consideration that affects tractive performance. Higher inflation allows more load, but tractive performance. Higher inflation allows more load, but tractive performance will suffer.

Other considerations include using dual tires and tire construction options.

For information on checking tractor wheel slip and weighting your tractor, ask for fact sheet "Tractor Weighting and Tire Selection", available from University of Delaware Substation, R.2, Box 48, Georgetown, DE 19947

PENNSYLVANIA AGRICULTURE



WE'RE GROWING BETTER

Bomberger's Bologna adopts state logo

LEBANON — The Bomberger Bologna Company, R1, Lebanon, has joined the Agriculture Department's "Pennsylvania Agriculture — We're Growing Better" logo campaign, according to Carl Baum, president of the company. Bomberger's is the manufacturer of sweet Lebanon and Lehigh bologna.

Baum said the company will continue to process the same top quality Pennsylvania products as always, but will identify the products with the logo on the packaging.

The logo includes an outline of the state with the letters PA inside. The campaign is part of Governor Dick Thornburgh's economic development initiative for the state and is aimed at identifying Pennsylvania food products, thereby increasing sales.

State Agriculture Secretary Penrose Hallowell said, "I am extremely pleased to welcome the Bomberger Bologna Company to the logo campaign. Through the efforts of our food companies, the campaign will help increase sales, stimulate economic growth, and save energy and transportation costs, which ultimately helps the consumer get better prices."

"The Bomberger Bologna Company has shown its pride in Pennsylvania and should be commended for its public spirit," Hallowell added. The company has been in operation in South Lebanon Township since 1921.

He noted, "Food shoppers, whether looking for fresh produce or processed foods, should look for the logo. With your help, Pennsylvania agriculture will continue growing better."

PUBLIC SALE

REAL ESTATE & PERSONAL PROPERTY
SAT., JUNE 6, 1981
11 o'clock A.M.

Located on road from Wakefield to Peach Bottom at Cherry Hill, Fulton Twp., Lanc. Co., Pa.

Real Estate consists of all that certain tract of land containing 1600 sq. yards more or less with 71 ft. frontage erected there on 2½ story frame dwelling containing 6 rooms & 1½ baths, baseboard oil hot water heat, well water, blown insulation, electric and other conveniences. Real Estate may be inspected by appointment phone James A. Brown 717-548-2229. Real Estate will be offered for sale at 2 P.M.

Personal property consists of corner cupboard, ext. table, oak arm chair, 4 oak chairs, platform rocker, other rockers, over stuffed chair, 4 kitchen chairs, end tables, small tables, telephone stand, high chair, chuffer robe, 2 wardrobes, dresser, chest of drawers, single bed, mattress & boxspring, 2 clothes trees, basket cradle, blanket chest, 2 old trunks, mirrors, linens & bedding, lot of old books, picture frames, typewriter, China & glassware, punch bowl & cups, cooking utensils, Kenmore electric cleaner, Tappan electric range, Whirlpool no frost refrigerated freezer, Philco washer, Philco Dryer, toaster oven, electric appliances, kitchen cupboard, metal cabinets, kitchen table & 6 chairs, 3 sets of spring balance scales, rayo lamp, Christmas decorations, glass jars, 36 ft. ext. ladder, step ladder, vice, table saw, metal wheelbarrow, lawn chairs, misc tools, and many other articles.

1970 Ford LTD car.

SALE BY
JAMES A. BROWN & BETTY M. HILL
Executors of the
GYLES H. BROWN Estate
Sam Ferguson Musser, Att'y
Kersey A. Bradley, Auct.
Kirk & Eschbach Clerks
Lunch available

EVENING AUCTION

Of 3.8 acre Berks Co. Farmette and 1.7 acre parcel with Mobile Home and Pond situate in the Oley Valley.

ON TUESDAY EVENING, JUNE 2, 1981

Conveniently located 15 min. from Reading, 15 min. from Pottstown, 7 min. from Boyertown, 40 min. from Allentown. Located along Manatawney Rd., off Covered Bridge Rd. via Fisher Mill Rd; from Pleasantville (Rt. 73) turn south onto Covered Bridge Rd. or from Yellow House (Rts. 562 & 662), travel north to Covered Bridge Rd. Earl Twp., Berks Co.

Parcel #1: Stylish split level brick and aluminum home w/4 bdrms., modern kitchen, formal dining area overlooking recreation rm/fireplace, 1½ bath & attached 2 car garage. Oil fired hot water heat, drilled well. Home sets 350' off road w/mountain behind it, a beautiful setting on approx. 3.8 acres.

Parcel #2: 1.7 acres with skirted furnished 12x70 Burlington mobile home, pond and old log house. Small barn, fenced area including 1½ acres of woodland, garden area and other out bldgs.

For more details & brochure call Frey Auctioneers - 215-689-5269. For appointment call 215-689-5778.

Sale at 7:00 P.M.

Sold for
THOMAS & ELIZABETH McCANN

FREY AUCTIONEERS
JOHN D & GEORGE D
Yellow House