TABLE V—*Continued*

FARM GAME PLANTING—UTILIZATION DATA

MULTIFLORA ROSE

Month	*No. of Plantings Checked*	*% of Plantings in Which Wildlife Observed*		*% of Plantings in Which Wildlife Sign Observed*	
		Rabbit	*Quail*	*Rabbit*	*Quail*
June, '54	4	1	—	100	25
July	3	–	—	66	—
August	4	1	50	50	50
September	4	–	—	50	—
October	4	–	—	50	—
November	3	–	—	50	—
December	4	–	—	75	50
January, '55	3	–	—	33	—
February	3	–	—	66	—
March	2	–	—	100	—
April	2	–	—	100	—
May	4	–	25	50	—
June	1	–	—	100	—
July	3	–	—	100	33
August	2	–	—	50	—
September	1	–	100	—	100
October	2	–	—	50	50
November	2	–	—	50	—
December	2	–	—	100	50
January, '56	3	–	—	66	—
February	–	–	—	—	—
March	2	–	—	100	—
April	1	–	—	100	—
May	2	–	—	50	—

SHOOTING PRESERVES IN THE SOUTH

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The following are personal observations on shooting preserves after working with them in varying degrees in nearly 20 states the past four years.

Thirty-eight states now allow shooting preserves to operate during extended seasons for one or more species. While most states have legislative authority, some states allow preserves to open for non-native game because of a lack of prohibitory laws.

The first enabling legislation for the establishment of shooting preserves was entered in New York in 1910. There is sufficient experience with basic legislation and regulations so that any state may enact laws which are fair to the operators of shooting preserves, the state game commissions which must administer these laws, and the general sportsman.

Two basic essentials of model shooting preserve legislation which should be included are a minimum and maximum acreage for a single preserve. In much of the South, where leasing rights are cheap, a maximum acreage is imperative. Shooting preserve operators tend to tie up more land than they need. A maximum acreage of 1,000 acres is ideal; it has been proven in many states to be a happy medium. One thousand acres are all that are needed for handling quail, pheasants, chukars and mallards, the game most commonly released.

A minimum acreage of 100 is needed so that a new operator will have to go to a certain amount of trouble in getting a license, posting land and generally

give assurance of being a legitimate operator who is not depending on an overflow of birds from a neighboring preserve.

The best control which a state game commission has over shooting preserves is a required minimum seasonal release of each species to be harvested during the extended season. That is, an operator might be required to show that he would release one quail for each licensed acre during the six months season. If he had 500 acres licensed, he would have to release a minimum of 500 quail. If he is willing to go to the trouble and expense of buying or raising that many birds, he will have a legitimate preserve operating within the spirit of the law. He will not depend on licensing his preserve to kill a few native birds because it would not be worth the investment. A minimum release requirement insures that the operator is depending on pen-raised birds.

An ideal minimum for quail in the South is one quail released for every one or two acres in the licensed preserve. This prevents a small group, or private shooting preserve, from opening and depending solely on native birds. They have to make a definite effort to get in the business and are making a contribution to sport by their releases.

The minimum release for pheasants, chukars, mallards and Coturnix in the South is ideal at 100 of each species to be handled. These birds, with the exception of mallards, are not native and do not bring up the question of hunters inadvertently taking wild birds.

The minimum release requirements should be a happy medium. They should be strict enough to insure that the operator has a preserve within the spirit of the preserve enabling act. But they should not be so strict as to be discriminatory. Too high minimum release requirements would mean that only a wealthy person could operate a shooting preserve.

An operator might have a successful pheasant operation and wish to see if his hunters would accept quail. It would not be fair to require that he handle a minimum of 5,000 birds the first year for that would mean a large investment. But a minimum of perhaps 500 would be reasonable and fair. The minimum should be low enough so that operators can experiment with different species without a huge overhead.

In 1921 the old Biological Survey made an administrative ruling that mallard ducks—MORE than two generations removed from the wild, were not subject to Federal regulations. Later, black ducks were added. This puts the responsibility for the administration of these game-farm ducks squarely under individual state game commissions. The pass shooting of mallards on preserves has become popular in the East and Midwest and there is every reason to believe it will become equally accepted in the South. State game commissions should anticipate requests they will receive from sportsmen and get their laws and regulations fairly and firmly in order. A duck stamp is not needed to shoot mallards or black ducks, MORE than two generations removed from the wild. These waterfowl may be taken the year around without regard to bag limits as far as the Federal regulations are concerned. It is up to the individual states to set the shooting preserve seasons for game-farm ducks.

Ringnecked pheasants are better suited for put-and-take shooting than any other game because pheasants do not tame down in captivity. If given conditioning room when they are raised, pheasants will fly satisfactorily on being stocked daily.

Mallards, when trained properly under techniques available and proven, also give flights accepted by hunters. Generally, it takes more shots per duck bagged than per shot for any species now used on preserves. The operator can also make more profit per duck handled than for other birds. Usually the volume of ducks is not as high as the volume of pheasants or quail.

In a given area, where preserves are relatively new, pheasants and quail are the main attractions and the species the operators depend on to attract hunters. A hunter who has never been to a preserve may understand how pheasants and quail are handled. But it is almost impossible to explain mallard flighting; a hunter must see it to decide whether or not it appeals to him. Usually, mallards are added after an operator has built up his trade with pheasants or quail.

In some states, where mallards have been used on preserves for many years, the volume of mallards on a given preserve may surpass the number of other

species bagged. If the number of shots for each downed bird may be used as a criterion, then mallard shooting is the sportiest of all. But it takes time to demonstrate this to sportsmen. There are probably less than five shooting preserves in America which handle only mallards.

Shooting preserves are difficult to operate and there is no fast money to be made with them. In most cases, an operator will never make more than a modest living. Preserves are essentially one-man affairs; there is not usually enough profit for two or more partners. To be successful, generally a shooting preserve must be the full-time occupation of the owner or manager. Preserves are too complicated to be run as hobbies or part-time businesses. An operator must be a jack-of-all-trades. He must know how to raise quality game birds, understand cover problems, be able to train and handle dogs, and develop publicity. He must be able to handle people for he will meet every type. To start with, he must have the proper terrain and a sufficient amount of open land. He should be located within easy driving distance of a major population center. And he has to have finances to carry him for a year or two.

It is difficult to meet all of these requirements. To the best of my knowledge, only four biologists have left their state or Federal jobs to become managers of shooting preserves or open their own.

There have been few failures of shooting preserves. I don't believe this is because the operators are making a lot of money but because they often get in so deep the first year they can't get out.

A fee of five dollars for each pheasant bagged may sound like a lot of money to the average sportsman. But he fails to understand that an operator may lose 30 or 40 percent of the birds released. Birds continually fly from the property, become victims of predators or become lost as cripples or from disease. Even with a six-months season the operator cannot count on more than 120 days in which to take in his annual income. In most states there is no hunting on Sundays, rain and snow cause cancellations, too hot weather results in hunters staying home, and there are lulls near Christmas and New Year. In the future, sportsmen must be educated to the fact that shooting preserve operators have their problems, too.

The big question in the South is what about bobwhite quail for shooting preserves? Under conditioning techniques now known, quail are not generally satisfactory for releasing and shooting the same day. Quail must be stocked weeks ahead of time. This means the operator risks loss from predators and disease or the birds simply leaving the preserve. But still this wild conditioning is the only completely satisfactory method now known of assuring sporty flights from pen-raised quail.

Bobwhite quail, Coturnix quail and chukar partridge all tend to tame down in captivity. Much of this is the fault of the operators. When the birds are released and shot the same day, they may give unsatisfactory flights and the reputation of shooting preserves is damaged. Many conscientious operators are constantly working to develop methods of conditioning quail so the birds will revert to the wild as quickly as pheasants. I have complete faith that a final solution to this problem will be made. Experiments at Cornell University indicate that tranquilizers may help solve the cannibalism problem; eventually a process might be developed where pen-raised quail are given chemicals which induce them to become wild on being released.

Several Southern states now have five or six months seasons for bobwhite quail on shooting preserves. Virginia, Georgia, Oklahoma, Arkansas and others have had the courage and vision to recognize the need for quail preserves. There has been little opposition to shooting preserves in these states. I believe that other Southern states will receive requests from sportsmen for a six-months preserve season on quail. It would seem a wise move if states which do not now have quail preserves would study the laws and regulations in states which successfully are allowing long seasons now.

Pen-raised game birds are inclined to run more than their wild cousins. The best way of stopping this tendency is for operators to plant low ground cover thick enough to prevent birds from running. Operators should plant primarily for cover with feed being secondary. If there is a shortage of feed in late winter, feeders can be used. But when the ground cover is gone, satisfactory shooting is finished.

Even in Southern states with their long growing seasons and lush vegetation it is difficult to grow ground cover which will last through a six-months season. Constant trampling from hunters and farm vehicles gradually destroys the cover and the operator must plan carefully if he is to have enough cover left for shooting in late winter.

Planting cover for shooting preserves is generally different from feed and cover plantings of state game commissions. Preserve operators plant to recover birds; states plant to allow the birds year around survival. Bicolor lespedeza is the current rage among biologists for wild planting but bicolor is of little value on shooting preserves except in specialized conditions. While bicolor gives a certain amount of protection from predators on preserves, it does not meet the primary requisite of providing low-lying cover which will stop pen-raised birds from running. Bicolor is valuable in the wild as a late winter food crop but on a shooting preserve planting food plants is secondary and it is often more desirable to use feeders or to scatter feed than to depend on bicolor.

It is an unfortunate general rule of thumb that for a preserve operator to have enough cover for late winter shooting he must have more cover than is ideal in October. To make the thick, early cover huntable, mown strips checkerboarded through the cover provide easier walking for the hunters. And because hunters do tend to follow the mown strips, the trampling damage is reduced.

Dwarf sorghums are the best annuals for cover on shooting preserves. Strips 20 to 30 feet wide, checkerboarded over the area, are ideal. In much of the South rust is a problem with the seed heads and open head varieties are best. But the main reason for planting sorghums is to obtain thick ground cover and not a crop of seeds. Redbine-60 and Martin milo are two sorghums which have been widely used by shooting preserve operators.

The acceptance by hunters will determine the number of shooting preserves which will open and stay in business. Since preserves are economical ventures, only those which are patronized will continue to operate. If hunters are willing to support shooting preserves, then these preserves should be allowed to operate without being hampered by too stringent regulations or criticism from sportsmen who do not choose to use preserves.

In the past, proponents of shooting preserves have continually been on the defensive. But shooting preserves are now nationwide and used by thousands of hunters. The majority of hunters still have not tried preserves but few of them actually oppose preserves. More realistic shooting preserve regulations are needed in many states and indications are plentiful that sportsmen will seek modern regulations and laws from their state game commissions and legislatures. It will behoove state game commission personnel to anticipate these requests and study regulations which have been used in states where preserves have been popular for many years.

Illinois now has a full-time biologist as a free consultant to established and prospective preserve operators. Other states also offer technical assistance. This is definitely a trend which will grow. Between the pulpwood companies, the beef and dairy industry, and population growth, for all we know within 20 years there may be more birds harvested on shooting preserves than in open hunting.

Some states have been inclined to ignore shooting preserves. Even in states where preserves have been operating for 10 to 20 years, sportsmen, who pay the bill for the operation of the game commissions, cannot write to these commissions and get a list of shooting preserves open to the public where they might hunt. If these sportsmen cannot write their own commissions for this simple service, just where is the beleagured hunter to turn?

The Pennsylvania Department of Commerce is an outstanding example of a state agency which realizes the economic importance of shooting preserves. Non-residents coming into the state to enjoy a five-months preserve season spend considerable money. For two years, the Pennsylvania Department of Commerce has prepared a brochure on preserves open to the public and has distributed them nationally through press releases and paid advertising.

I firmly believe that shooting preserves in the South will eventually become economically important. Already there is a trend for Eastern and Midwestern sportsmen to stop at Southern shooting preserves on their annual fall pilgrimages

to Florida. And they stop by again in February and March on their way back home.

Since it is not quite fair to charge a non-resident $15.00 or $20.00 to hunt pen-raised game, many states now have special non-resident licenses, applicable only on shooting preserves, at reduced rates. The most popular charge among state game commissions, preserve operators and sportsmen is a non-resident fee of $5.00. This entitles the hunter to shoot on any preserve during the preserve season. Only released species may be harvested.

I feverently plea that state game commission personnel make a definite effort to study and understand shooting preserves. We should all be patient with the operators. No two preserves are alike; because one may not be appealing, we should not judge others without knowing first-hand what their standards are. Regardless of any early failings, the shooting preserve operator is a person who is desperately trying to provide a place for sportsmen to hunt. He generally realizes his weaknesses and is trying to overcome them. He knows he must please the hunters or go out of business.

The shooting preserve operator should be encouraged, befriended and assisted. The operator is trying to provide hunting on an intensive scale on a small area which is impossible to achieve with wild game. Aside from the fact that he is trying to make a dollar, the preserve operator is a brave spirit venturing into a relatively new field in the South and we should all be pleased that private enterprise is contributing this assistance.

Regardless of our personal feelings, shooting preserves are here to stay. No one claims that they will solve our many problems. But shooting preserves are one approach that achieves results and a partial solution to hunting pressure. With the national population growing at the rate of 3,000,000 a year, hunters need all the help they can get from every source.

MOURNING DOVE NESTING STUDIES IN MISSISSIPPI

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For years most sportsmen and personnel of wildlife management agencies throughout the country have failed to recognize the importance of the mourning dove as a major game bird species. However, in recent years this trend of thought has gradually changed as sportsmen and administrators alike have endeavored to learn more about the habits of this sporting bird. As examples of this changing trend, we cite the Cooperative Dove Study of the Southeastern states, the popular writings in the hunting publications, public pressure to open states to dove hunting that for years have been closed and the tremendous increase in the number of hunters pursuing this shooting sport. Possibly, importance of the dove as a game bird was indelibly stamped on the minds of most wildlife administrators in the Southeast with the outbreak of the dove disease, *trichomoniasis,* so prevalent a few years ago, and with the severe lowering of the population as a result of the spring ice storms of 1951.

A most important emphasis was added to the study of the mourning dove with the initiation of the five-year cooperative dove nestling banding program in 1955. The authors believe that the nestling banding program will obtain more results than any other phase of banding or census work because age and

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