

CRIMSON CLOVER-COTTON RELAY CROPPING WITH CONSERVATION TILLAGE SYSTEM

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INTERPRETATIVE SUMMARY

Alternative production systems were evaluated at research and growers level due to environmental and economic concerns. In a conventional production system growers were dependent on high chemical and tillage inputs. Alternative systems like 'Relay Cropping' were based on use of cover crops, reduced tillage and reduced chemical inputs. Cotton became a crop of choice for evaluation of alternative production system after the success of Boll Weevil Eradication Program (BWEP) in early nineties in Georgia.

Research and grower field trials were conducted for seven years which included two years of research and five years of production in growers field. In research, trial crimson clover and subterranean clover "Relay Cropping Systems" were compared with conventional system based on cotton production guides during 1991-1993. No fertilizers or insecticides were used in 'Relay Cropping Systems.' While recommended fertilizers and insecticides were applied. 'Relay Cropping Systems" produced significantly higher yields than conventional systems during both years of research.

'Relay Cropping Systems' were evaluated in growers field plots in Coffee county. Crimson clover was planted in 1993, in 7.2 acres of non-irrigated land, which has re-seeded every year since. Cotton was planted from 1994

thru 1998. No insecticides were used during all five years of cotton production. Only starter solution and nitrogen fertilizers were used for four years from 1994-1997. In addition, sulfate of potash-magnesia was applied in 1998. This 7.2 acre field produced higher yields than the state average during all five years. Soil analyses indicate that clover has recycled nutrients and reduce leaching. 'Relay Cropping Systems' research trials and growers field trials reported provide answers to environmental and economic concerns raised by conventional cotton production systems. Further evaluation of these alternative systems for cotton production is warranted..

CONCLUSIONS

In 'Relay Cropping Systems' with legume cover crops and conservation tillage, cotton crops were grown with reduced fertilizer inputs and insecticide applications were not needed. Thus, these systems are economically feasible and environmentally friendly. More large scale adaptation is needed to understand weaknesses and strengths of these systems.

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