USE OF CLOVERS IN THE SOUTHERN COASTAL PLAINS

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PERENNIAL CLOVERS

WHITE CLOVER
RED CLOVER

ANNUAL CLOVERS

ARROWLEAF CLOVER

BALANSA CLOVER

BALL CLOVER

BERSEEM CLOVER

CRIMSON CLOVER

PERSIAN CLOVER

ROSE CLOVER

SUBTERRANEAN CLOVER


HOW CAN
WE USE
CLOVERS?

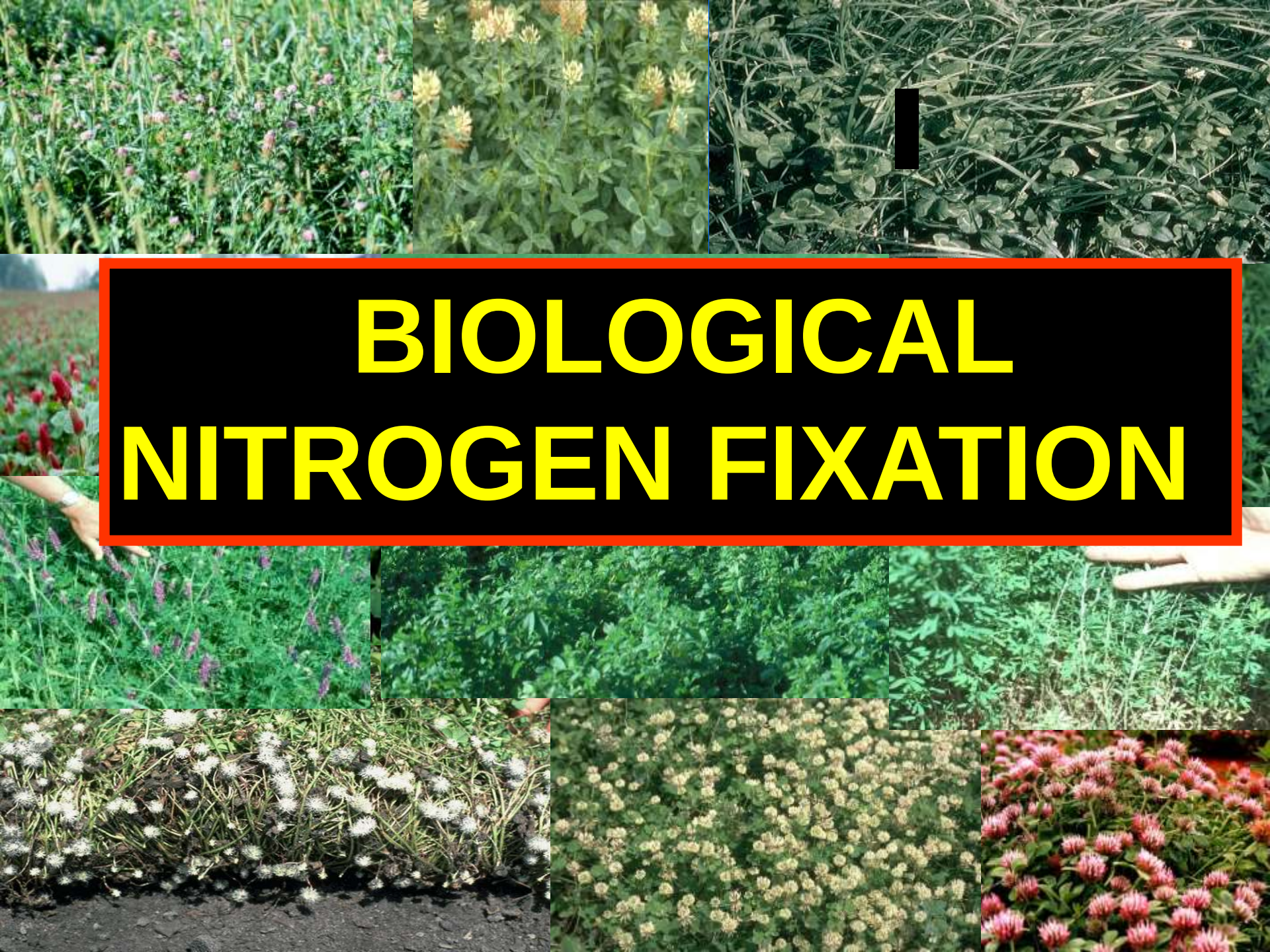

USED AS A COVER CROP


WILDLIFE FOOD PLOTS


PLANTED ON A
PREPARED
SEEDBED


OVERSEEDED ON A
SUMMER GRASS


WHY GROW
CLOVERS?


BIOLOGICAL
NITROGEN FIXATION

BIOLOGICAL NITROGEN FIXATION

- **ANNUAL CLOVERS-** 50 TO 150 LB/A/YR
- **PERENNIAL CLOVERS-** 75 TO 200 LB/A/YR

CLOVERS CAN MAKE A SUBSTANTIAL DRY MATTER YIELD CONTRIBUTION

YIELDS (LB D.M/AC) OF RYE, RYEGRASS & CLOVERSS; 4 COASTAL PLAINS LOCATIONS, 3 YR AVG

RYE, RYEGRASS, 200# N	5,771	
YUCHI ARROWLEAF CLOVER	5,305	466
AUTAUGA CRIMSON CLOVER	5,190	581
REGAL LADINO CLOVER	5,005	766
REDLAND RED CLOVER	4,978	793
MT BARKER SUB CLOVER	4,804	
ROSE CLOVER	4,623	
BIGBEE BERSEEM	4,196	

HOVELAND & ALISON- AAES BULLETIN 543


CLOVERS CAN IMPROVE FORAGE QUALITY AND INCREASE ANIMAL PERFORMANCE


952


CLOVERS CAN
EXTEND THE
GRAZING SEASON

COASTAL BERMUDAGRASS OVERSEEDED- HEADLAND, AL

OVERSEEDED SPECIES	DATES ON PASTURE	GRAZING DAYS	COW GAIN/ AC	CALF GAIN/ AC
ARROWLEAF & CRIMSON (0# N/AC)	MARCH 11- OCT 5	211 +24	290 +127	410 +117
NONE (100# N/AC)	APRIL 6- OCT 5	187	163	293

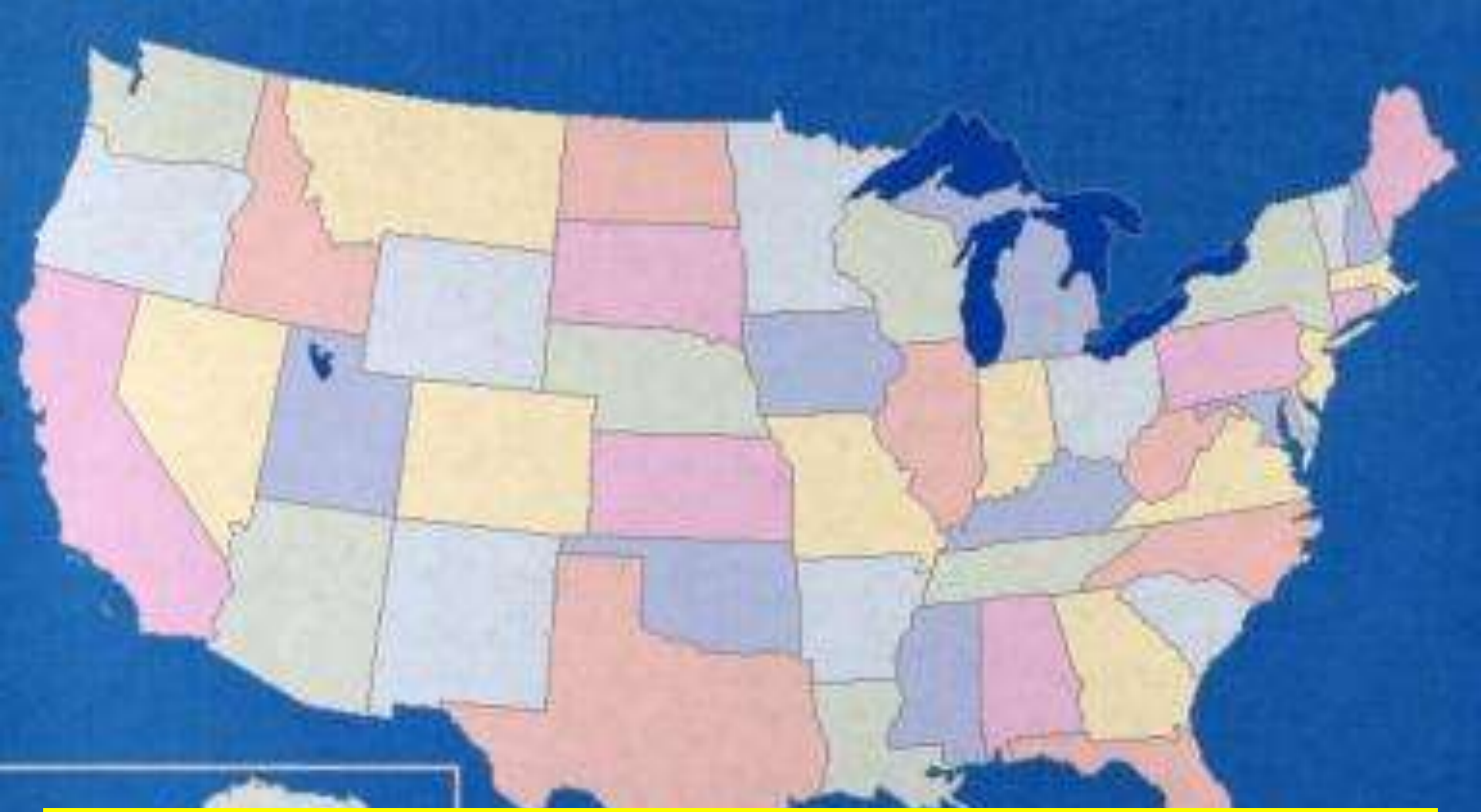
HOVELAND, ET AL., AAES BULL. 496

LEGUMES (INCLUDING CLOVERS) CAN PROVIDE AN ECONOMIC BENEFIT TO LIVESTOCK PRODUCTION

COMPARISON OF 37 PASTURE SYSTEMS

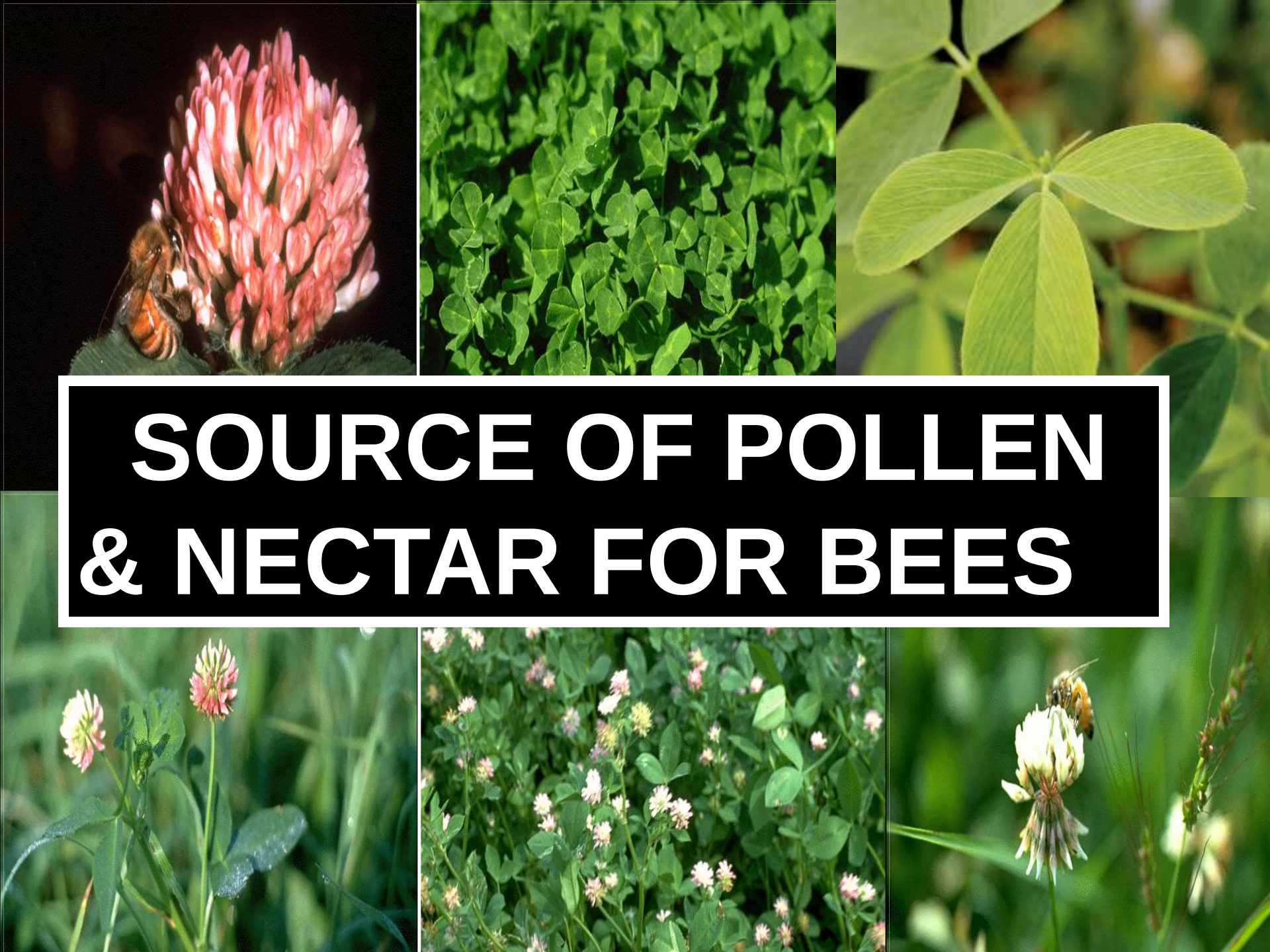
THE 7 LOWEST PASTURE COSTS PER POUND OF GAIN, AND 8 OF THE 10 LOWEST, INVOLVED LEGUMES

CLOVERS ARE ENVIRONMENTALLY FRIENDLY PLANTS



US AGRICULTURE USES OVER 12 MILLION TONS OF NUTRIENT NITROGEN ANNUALLY

N Is Typically The Most Limiting Nutrient In Crop Production, But Has The Most Potential For Environmental Impact From Losses – Rachel Cook



SOURCE OF POLLEN & NECTAR FOR BEES

ANNUALLY IN THE USA:
$385 MILLION VALUE OF HONEY: $14.6 BILLION VALUE OF POLLINATION


CLOVERS ARE
WILDLIFE PLANTS


CLOVERS FAVOR
GOOD SOIL HEALTH

DISADVANTAGES OF CLOVERS

REQUIRE MORE ATTENTION

MORE ERRATIC

LESS PERSISTENT

HERBICIDE SENSITIVITY

CAN CAUSE BLOAT


CLOVER TRAITS VARY

TRAITS TO CONSIDER

- HARD SEED
- SOIL - SAND, LOAM, CLAY
- SOIL pH RANGE
- DRAINAGE
- DRY MATTER YIELD
- AMOUNT OF N FIXATION
- DIST OF GROWTH - MATURITY
- GRAZING TOLERANCE

PERENNIAL CLOVERS

WHITE CLOVER
RED CLOVER

WHITE CLOVER

- TRUE PERENNIAL
- WIDELY ADAPTED
- TOLERANT OF DEFOLIATION

WHITE CLOVER

- LADINO (GIANT) TYPES
- INTERMEDIATE TYPES
- SMALL TYPES

IN RECENT YEARS THERE HAS BEEN A FOCUS ON SELECTION FOR PERSISTENCE IN WHITE CLOVER

RED CLOVER

- **BIENNIAL**
- **PRODUCTIVE**
- **LONG GROWING SEASON**

ANNUAL CLOVERS

ARROWLEAF CLOVER

BALANSA CLOVER

BALL CLOVER

BERSEEM CLOVER

CRIMSON CLOVER

PERSIAN CLOVER

ROSE CLOVER

SUBTERRANEAN CLOVER

ARROWLEAF CLOVER

- WELL-DRAINED SOIL
- HIGH % HARD SEED
- LATE SPRING GROWTH

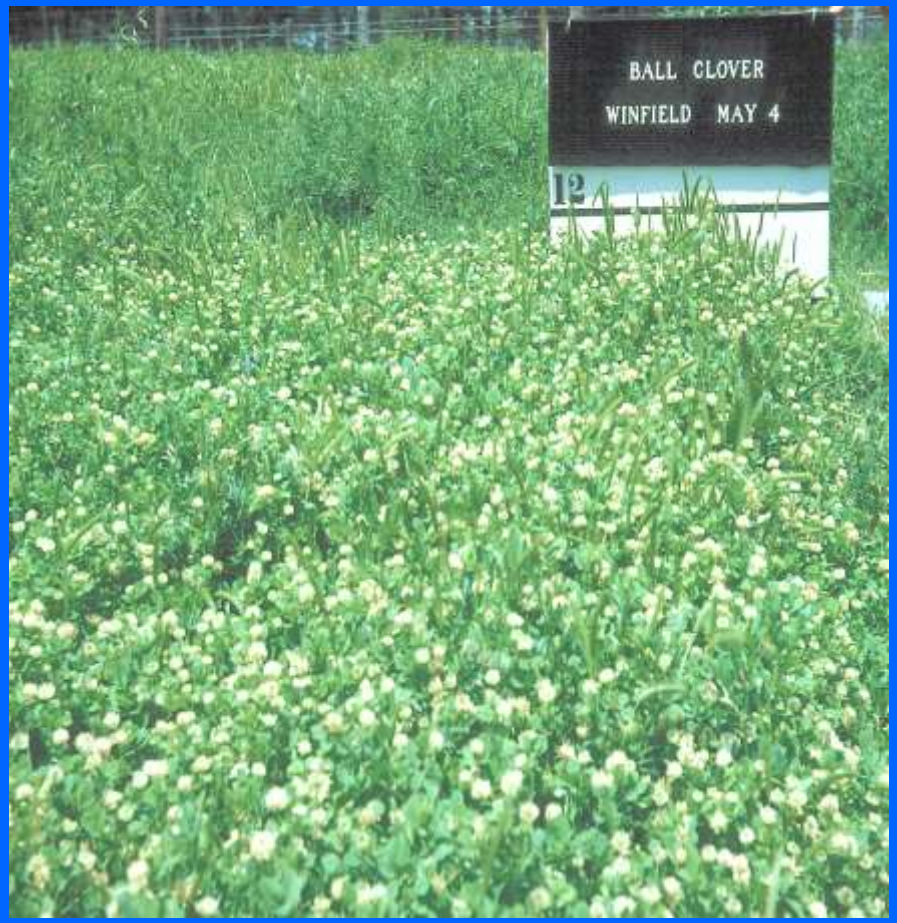

Arrowleaf
Clover

CRIMSON CLOVER

- WELL DRAINED SOIL
- EASY TO ESTABLISH
- EARLY SPRING GROWTH

BALL CLOVER

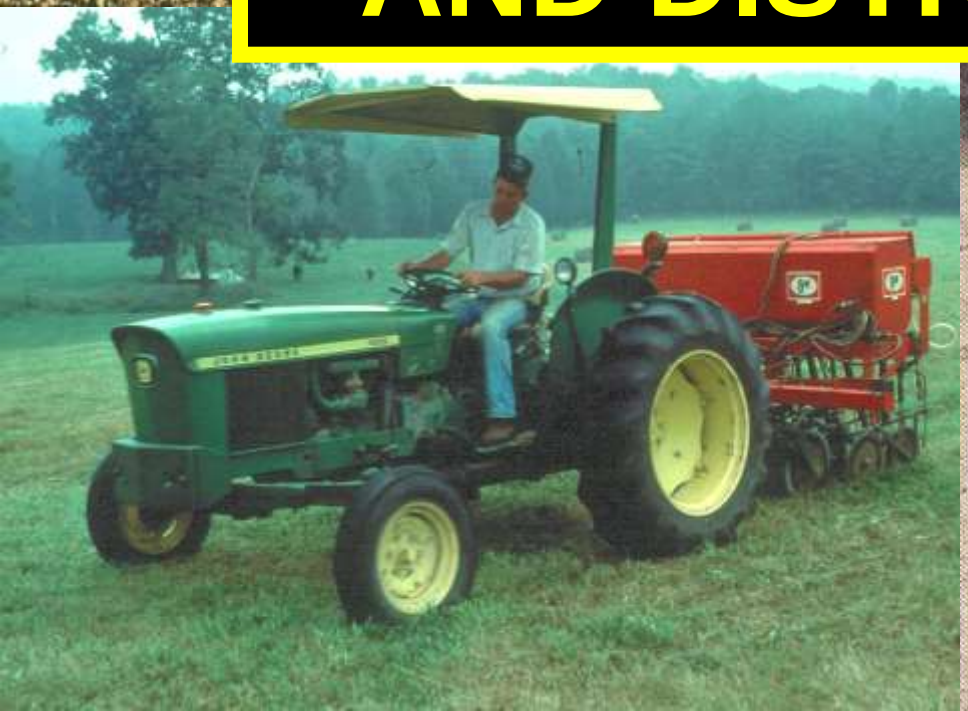
- WIDELY ADAPTED
- LOW SEEDING RATE
- CAN RESEED UNDER CLOSE GRAZING



POSSIBLE ISSUES/ LIMITING FACTORS IN GROWING CLOVERS


QUALITY SEED
AND PROPER INOCULANT

SEEDING DATE, RATE, AND DISTRIBUTION



FERTILIZATION:

P & K ACCORDING TO SOIL TEST; (BORON?)

NITROGEN NEEDS VARY

SOIL pH

FOR MOST CLOVERS THE OPTIMUM SOIL pH IS 6.0 TO 6.5


EXCESSIVE SURFACE
VEGETATION


JOHN DEERE
PROPER
SEEDING
DEPTH


GOOD SEED/SOIL
CONTACT

RARELY MENTIONED FACTOR THAT GREATLY LIMITS CLOVER STANDS IN PASTURES


CLOVERS
OFTEN
VOLUNTEER!

A MAJOR FACTOR LIMITING CLOVERS IN PASTURES . . .

LACK OF PRESENCE OF CLOVER SEED!

TEN KEYS TO A PROFITABLE FORAGE PROGRAM

Ten Keys To A Profitable Forage Program

Forage typically accounts for over half the cost of production of forage-consuming animals and provides most of their nutrition. Thus, it has a major impact on both expenses and income. The basic commodity is forage and animals are the harvesters or consumers. Efficient forage production and utilization are essential to a profitable operation.

I. **KNOW FORAGE OPTIONS AND ANIMAL NUTRITIONAL NEEDS.** Forages vary as to adaptation, growth distribution, quality, yield, persistence, and potential uses. Also, various types and classes of animals have different nutritional needs. Good planting decisions require knowing forage options for the land resources and nutritional needs of the animals.

II. **ESTABLISHMENT IS CRITICAL.** Good forage production requires an adequate stand of plants. Mistakes during establishment often have long-term consequences. Use of high quality seed of proven varieties, timely planting, and attention to detail lead to establishment success.

III. **SOIL TEST, THEN LIME AND FERTILIZE AS NEEDED.** This practice, more than any other, affects the level and economic efficiency of forage production. Fertilizing and liming as needed help ensure good yields, improve forage quality, lengthen stand life, and reduce weed problems.

IV. **USE LEGUMES WHENEVER FEASIBLE.** Legumes offer important advantages including improved forage quality and biological nitrogen fixation, whether grown alone or with grasses. Every producer should regularly consider on a field-by-field basis whether the introduction or enhancement of legumes would be beneficial and feasible. Once legumes have been established, proper management optimizes benefits.

V. **EMPHASIZE FORAGE QUALITY.** High animal gains, milk production, and reproductive efficiency require adequate nutrition. Producing high quality forage requires knowing the factors that affect forage quality and managing accordingly. Matching forage quality to animal nutritional needs greatly increases efficiency.

VI. **PREVENT OR MINIMIZE PESTS AND PLANT-RELATED DISORDERS.** Diseases, insects, nematodes, and weeds are thieves that lower yields, reduce forage quality and stand persistence, and/or steal water, nutrients, light, and space from forage plants. Variety selection, cultural practices, scouting, use of pesticides, and other management techniques can minimize pest problems. Knowledge of potential animal disorders caused by plants can reduce or avoid losses.

VII. **STRIVE TO IMPROVE PASTURE UTILIZATION.** The quantity and quality of pasture growth vary over time. Periodic adjustments in stocking rate or use of cross fencing to vary the type or amount of available forage can greatly affect animal performance and pasture species composition. Knowing the advantages and disadvantages of different grazing methods allows use of various approaches as needed to reach objectives. Matching stocking rates with forage production is also extremely important.

VIII. **MINIMIZE STORED FEED REQUIREMENTS.** Stored feed is one of the most expensive aspects of animal production, so lowering requirements reduces costs. Extending the grazing season with use of both cool season and warm season forages, stockpiling forage, and grazing crop residues are example of ways stored feed needs can be reduced.

IX. **REDUCE STORAGE AND FEEDING LOSSES.** Wasting hay, silage, or other stored feed is costly! On many farms the average storage loss for round bales of hay stored outside exceeds 30%, and feeding losses can easily be as high or higher. Minimizing waste with good management, forage testing, and ration formulation enhances feeding efficiency, animal performance, and profits.

X. **RESULTS REQUIRE INVESTMENTS.** In human endeavors, results are usually highly correlated with investments in terms of thought, time, effort, and a certain amount of money. In particular, the best and most profitable forage programs have had the most thought put into them. Top producers strive to continue to improve their operations.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Prepared by the authors of *Southern Forages*: Dr. Don Ball, Auburn University; Dr. Carl Hoveland, University of Georgia, and Dr. Garry Lacefield, University of Kentucky. The Third Edition of *Southern Forages* is available from the Potash & Phosphate Institute, 655 Engineering Drive, Suite 110, Norcross, GA 30092-2837. Phone (770) 447-0335. Price $30 + $4 shipping & handling.

 Ref. # 02047

USE LEGUMES WHENEVER FEASIBLE

LEGUMES OFFER IMPORTANT ADVANGAGES. EVERY PRODUCER SHOULD CONSIDER ON A FIELD-BY-FIELD BASIS WHETHER THE INTRODUCTION OF LEGUMES WOULD BE BENEFICIAL AND FEASIBLE