

LAUNCHING WORKSHOP-ICO – CFC- CABI PROJECT

INTEGRATED STEM BORER MANAGEMENT IN SMALL HOLDER FARMS-INDIA , MALAWI, ZIMBABWE

MANAGEMENT OF COFFEE WHITE STEM BORER

CULTURAL & MECHANICAL MEASURES

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CULTURAL AND MECHANICAL METHODS

- HANDPICKING
- STEM COVERING
- TRAPS
- STEM SCRUBBING
- SHADE MANAGEMENT
- TRACING, UPROOTING & DISPOSAL



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HANDPICKING OF BEETLES

EARLIER REPORTS STATED THAT THE BEETLES COULD BE VERY EASILY HANDPICKED INDICATING THE SEVERITY OF THE INCIDENCE IN THOSE DAYS

	BEETLES PICKED DURING 1924	TREES PULLED OUT IN 1925	
		TRIAL PLOT	CONTROL PLOT
8 ACRE PLOT	6231	1418	1686
5 ACRE PLOT	2000	549	1139

IN A STUDY DURING 1989-91, 10 WORKERS FROM 10 ACRES FOR 6 WEEKS COLLECTED 225 ADULTS IN 2 FLIGHT SEASONS (GKVeeresh 1993)

NO REDUCTION IN INFESTATION



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STEM COVERING

STEMS COVERED WITH STRIPS OF DATE PALM MATTING TO PREVENT THE EMERGENCE AND THE EGG-LAYING

FOUND EFFECTIVE, BUT CUMBERSOME AND COST QUITE PROHIBITIVE (RS. 75/ACRE DURING 1941)

WRAPPING WITH NEWSPAPERS AND PABCO-THERMOGEN (SHEET FROM SUGARCANE MEGASS) NOT EFFECTIVE

WRAPPING STEMS WITH POLYTHENE AND GUNNY STRIPS DID NOT PREVENT EMERGENCE



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STEM COVERING

COVERING THE MAIN STEM WITH POLYTHENE AND WIRE MESH IN THE FIELD FOUND DIFFICULT AND NOT FEASIBLE

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USE OF TRAPS

LIGHT TRAPS

- DIFFERENT TYPES OF LIGHT TRAPS WERE TRIED, WITHOUT POSITIVE RESULT

CUT STEMS

- THE CUT STEMS OF COFFEE AND OTHER SHADE TREES HUNG IN THE COFFEE ESTATES AS EGG TRAPS GAVE NO SATISFACTORY RESULTS
- DRY AND FRESH TEAK LOGS KEPT IN THE FIELD DID NOT ATTRACT THE BEETLES FOR EGG LAYING

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STEM SCRUBBING

IN EARLIER STUDIES, SCRUBBING TWICE DURING THE FLIGHT SEASON FORTNIGHTLY FOUND VERY EFFECTIVE AND SIMPLE REMEDY

THE DRY SCALY BARK, MOSS AND LICHENS REMOVED ALONG WITH EGGS AND YOUNG LARVAE

IN AN ESTATE OF 62 ACRES - SCRUBBING DONE TWICE – 1,200 COFFEE BUSHES PULLED OUT AS AGAINST 14,000 BUSHES ON AVERAGE OF THE THREE YEARS

SCRUBBING TO BE DONE PARTICULARLY IN OPEN PATCHES



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STEM SCRUBBING

IN LABORATORY AND FIELD TRIALS, BEETLES LAID EGGS ON UNSCRUBBED STEMS BUT NO EGGS OBSERVED ON SCRUBBED STEMS

SCRUBBING HAD NO EFFECT ON THE PHYSIOLOGY OF THE PLANT – THERE WAS NO CHANGE IN FRUIT SET AND RETENTION, NUMBER OF LEAVES

SCRUBBING OVER 9 YEARS IN AN AREA OF 195.16 ACRES RESULTED IN REDUCTION OF STEM REMOVALS FROM 93 TO 0.81/AC./YEAR



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STEM SCRUBBING

A THREE YEAR STUDY INDICATED THAT

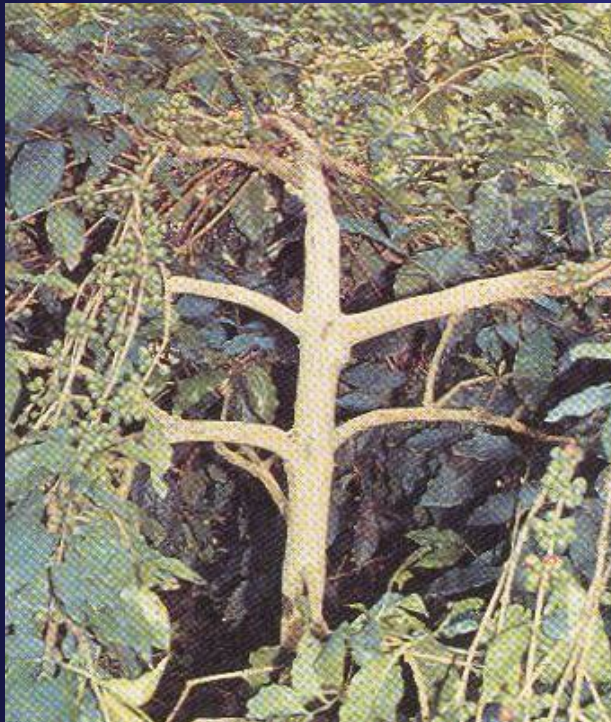
- SCRUBBING EFFECTIVE IF DONE DURING THE EGG LAYING PERIOD OR BEFORE THE GRUBS ENTERED THE STEM
- SCRUBBING TO BE DONE ONCE A YEAR
- SCRUBBING USING SHARP OBJECTS LIKE METAL PIECES, KNIVES ETC., CAUSED DAMAGE , EVEN DEATH, TO THE PLANT
- COIR GLOVES FOUND BE TO SAFE



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STEM SCRUBBING



SCRUBBED STEM



COIR GLOVE

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SHADE MANAGEMENT

BETTER TO HAVE A DENSE SHADE WHEN PLANTS ARE YOUNG AND THEN REGULATE AFTER THE PLANTS ARE GROWN UP

ATTENTION TO BE PAID IN KEEPING WELL REGULATED SHADE IN ESTATES WITH BORER INCIDENCE

TIME SHADE REGULATION TO MAINTAIN OPTIMUM SHADE DURING FLIGHT PERIODS

BETTER TO HAVE A DENSE SHADE WHEN PLANTS ARE YOUNG AND THEN REGULATE AFTER THE PLANTS ARE GROWN UP

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SHADE MANAGEMENT

SAFER TO HAVE MORE SHADE AND A LESS RETURN THAN LOSING PLANTS TO BORER ATTACK

RETAIN MAXIMUM PLANT CANOPY TO ATTAIN SELF SHADING ON THE MAIN STEM BY CONTROLLING LEAF DISEASES AND BLACK ROT

CASE STUDY

REMOVAL OF BORER INFESTED STEMS IN FOUR YEARS ON A LARGE PLANTATION DURING 1929 - 32

IN BORDEAUX SPRAYED PLOT- 36,620

IN UNSPRAYED PLOT - 1,07,223



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TRACING, UPROOTING & DISPOSAL

“ONE OF THE VERY IMPORTANT ITEMS OF BORER CONTROL MEASURES WHICH EVERY COFFEE PLANTER SHOULD PAY PARTICULAR ATTENTION TO EVERY YEAR IS THE TIMELY REMOVAL AND VERY CAREFUL DISPOSAL OF BORER REMOVALS BY BURNING. IT IS OF UTMOST IMPORTANCE TO BURN THESE COMPLETELY BEFORE THE MIDDLE OF SEPTEMBER EVERY YEAR, IN ORDER TO ENSURE THE DEATH OF ALL THE BORERS IN THE COFFEE STEMS”



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TRACING, UPROOTING & DISPOSAL

EARLIER REPORTS

THIS PRACTICE NEGLECTED IN THE 1930S DUE TO CONTINUED SLUMP IN COFFEE PRICES RESULTED IN ENORMOUS LOSS OF PLANTS

REMOVAL OF BORER PLANTS AS LATE AS SEPTEMBER AND CONTINUING UP TO NOVEMBER AND HEAPING IN DIFFERENT CORNERS OF THE ESTATES RESULTED IN INCREASE IN THE BORER POPULATION IN LATER YEARS

THE BEETLES DEVELOPING IN THE UPROOTED STEMS COMPLETE LIFE CYCLE EARLY - RESULTS IN OVERLAPPING EMERGENCE



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TRACING, UPROOTING & DISPOSAL

PRACTICE OF STORING THE BORER REMOVALS FOR FUEL IS FOLLOWED BY MANY PLANTERS

WORKERS STORE THESE IN THEIR LINES FOR USE AS FUEL AND ALSO CARTED LONG DISTANCES FOR THIS PURPOSE

IT IS COMMON TO SEE TREES PULLED OUT IN JULY-AUGUST LYING ALONG THE ROAD SIDE EVEN AS LATE AS DECEMBER

SOMETIMES, UPROOTED STEM LIE IN THE ESTATES FOR LONGER PERIOD BEFORE TRANSPORTING

BURNING OF INFESTED STEMS BEFORE END OF SEPTEMBER WILL GO A LONG WAY IN REDUCING BORER ATTACK



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BURNING OF INFESTED STEMS

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DEINFESTATION OF THE UPROOTED STEMS FOR OTHER USES

- ALL THE STAGES OF THE BORER DIED AFTER 7 DAYS WHEN INFESTED STEMS KEPT IMMERSED IN WATER
- HENCE, THE BORER STEMS CAN BE USED AFTER IMMERSING IN WATER FOR TEN DAYS



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THANK YOU

