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Breeding of "JS149×CS170" a Both Parent Sex-limited Cocoon Color Variety for Spring Rearing Season

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Objectives

All of the commercial silkworm races spread to farmhouses are hybrid of first generation, therefore distinction of sex of parent races is essential. But the existing sexing method which distinguish sex by outer sexual characteristics have many problems such as need of skilled worker and excessive efforts for distinction of sex. So more simple and accurate method for distinction of sex is needed.

Materials and Methods

Materials : Japanese race(JS149: Y1×8586), Chinese race(CS170:Y1×9153)

Methods : CA(Combining ability test), LT(Local adaptability test)

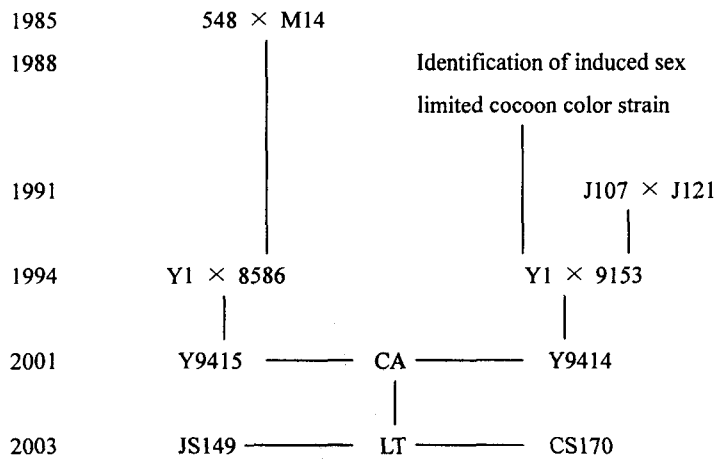

Fig. 1. The pedigree of "Y9415×Y9414", the F1 hybrid between JS149×CS170

Results and Discussion

JS149 X CS170 is newly developed high silk yielding race, the reason of development and major characteristics are as follows. In 1994, the original Japanese race JS149 was crossbred with Y1 and 8586, and the original Chinese race CS170 with Y1 and 9153 for the purpose of breeding a both sex-limited cocoon color races. Both of two original races are sex limited races which make yellow cocoon, and the sex can be distinguished by cocoon color, male makes white cocoon and female makes yellow cocoon. By the development of this race, 27 % of efforts to make silkworm eggs was reduced per box. And there is no

errors in distinction of sex, so improvement of productivity and mechanization of distinction of sex is possible. Production of high quality silk is possible by reeling with separated cocoons by sex. Pupation rate and cocoon yields from 10,000 3rd molted larvae are a little lower than control, but distinction of sex is possible by cocoon color so the efforts to make silkworm eggs and male pupa can be reduced.

Table 1. Rearing results of JS149×CS170 through the local adaptability test performed at 8 places in spring 2003

Variety	Useful hatchability	Larval period	Pupation percentage	Best cocoon rate	Double cocoon rate
	%	days.hrs	%	%	%
Kumokjam	96	23.21	94.4	92.3	0.6
JS149×CS170	92	24.09	94.0	92.6	1.2

Variety	Cocoon yield per 10,000 3rd molted larvae	No. of cocoons per liter	Single cocoon weight	Cocoon shell weight	Cocoon shell percentage
	kg	ea	g	cg	%
Kumokjam	21.1	55	2.35	56.9	24.2
JS149×CS170	20.9	55	2.29	56.8	24.7

Table 2. Cocoon reeling results of JS149×CS170 through the local adaptability test performed at 8 places in spring 2003

Variety	Filament length	Filament weight	Filament size	Reelability	Raw silk percent
	m	cg	d	%	%
Kumokjam	1,563	52.7	3.04	78	22.26
JS149×CS170	1,525	50.0	2.98	77	21.83

Variety	Raw silk yield	Neatness	Degumming rate	Lousiness
	kg	point	%	point
Kumokjam	4.70	96	23.4	96
JS149×CS170	4.55	95	26.1	95

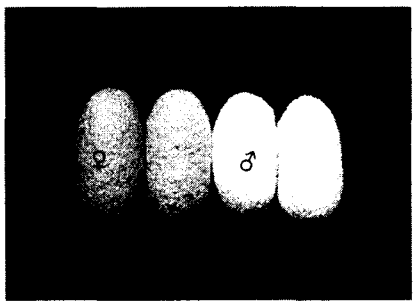

Fig. 2. Yellow cocoon : Female, White cocoon : Male

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