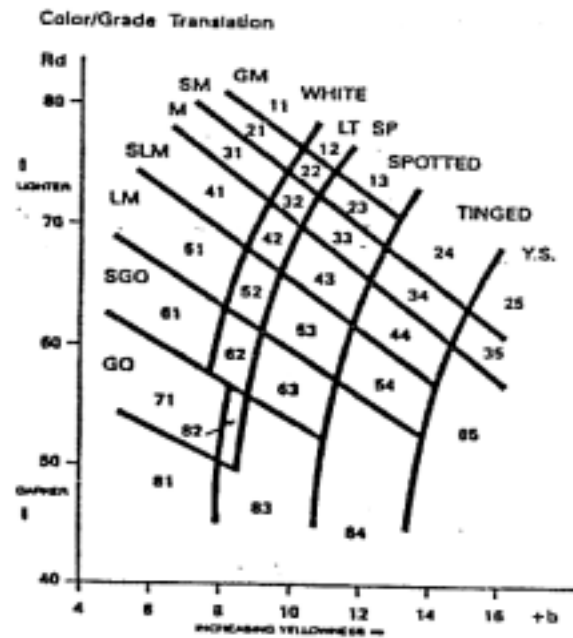


HVI (2) -

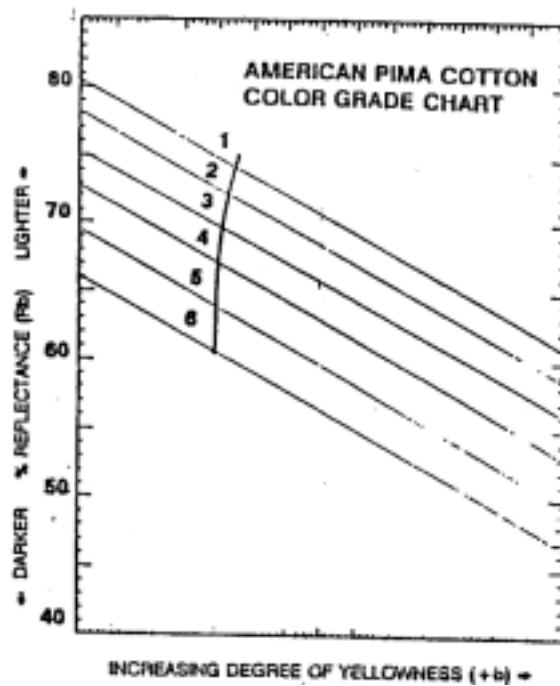
2. HVI

2.1 (Color)

,
가 . 가
가 .
1927 USDA Cotton Division Standards Section Dorothy Nickerson
가
, 1959 Spinlab Nickerson-Hunter
Cotton Colormeter가 . 가 “Universal Standards for Grades of
American Upland Cotton and Pima Cotton” Color Grade
2> 3> . X
White, Light Spotted(LT SP), Spotted, Tinged Yellow Stained(YS) ,
Y Good Middling(M), Strict Middling(SM), Middling(M),
Strict Low Middling(SLM), Low Middling(LM), Strict Good Ordinary(SGO) Good
Ordinary(GO) .
Cotton colorimeter ,
.
가 HVI



< 2> Color Grade Chart : Upland cotton



< 3> color Grade Chart ; Pima cotton

가

“White”

“natural white”

“dead white”

가 가

가 .

가

가 (400~700mm)

,

가

가

3

(, ,)

1931

CIE Standard Observer(CIE)

3

(X, Y, Z 3) 가 ,

100 Mering

(Opponent-colors theory of color vision)

(signal-switching)

가

가

(green-to-red)

가

(yellow-to-blue)

a, b

(

).

(

L

)

% Reflectance

.

3가

,

(Hue),

(Saturation)

(Lightness)가

,

<

4>

.

Hunter L.a.b.

CIE L.a.b

,

CIE 3

. HVI

CIE 3

.

(blueness)

(greenness)

*(redness)

가

,

(whiteness)

(yellowness)

가

3

2

,

Rd

+b

가

<

5>.

Colorimeter

가

2

2

가 photocell

.

photocell

CIE 3

(Y, Z)

Nickerson-Hunter

.

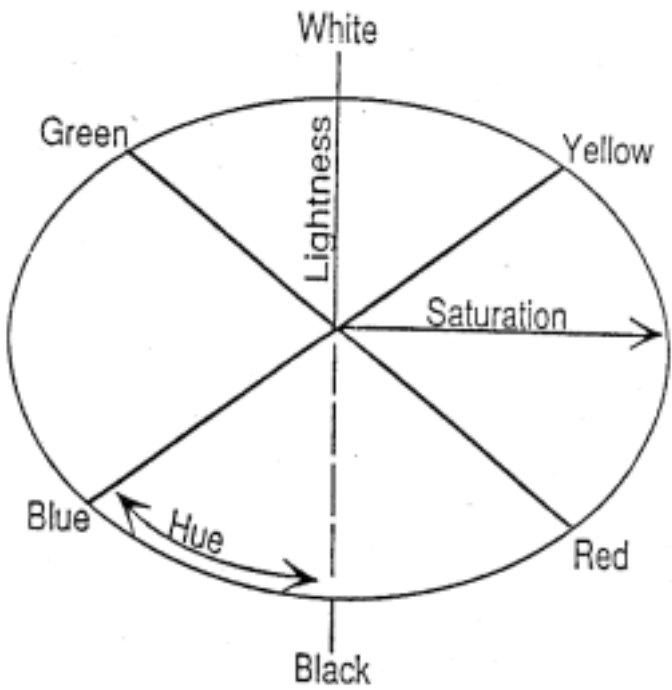
$$Rd = \frac{Y}{20}$$

$$+b = V_1 \times V_2$$

$$V_1 = 35.7 \frac{(21 + 0.2Rd)}{(1 + 0.2Rd)}$$

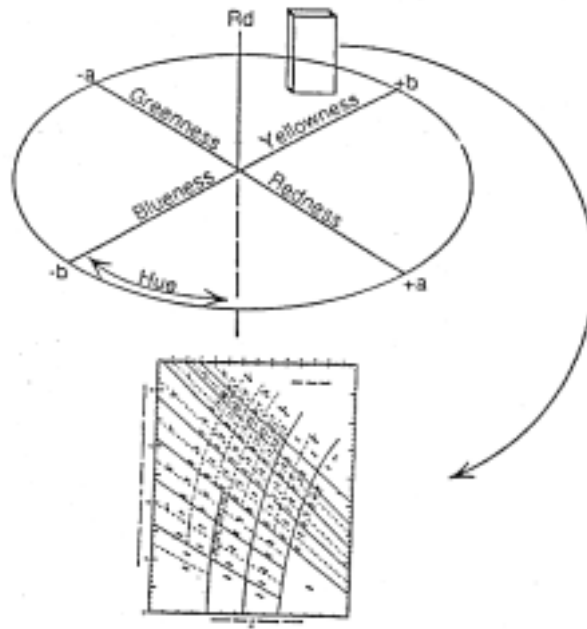
$$V_2 = \frac{Rd}{100} - 0.847 \frac{Z}{2000}$$

Rd +b 가
 가 가 .
 < 2> < 3> Color Grade



< 4>

HVI Rd +b
 window 가 . MCI HVI 8.1 × 6.3cm
 Spinlab HVI 9.53 × 9.53cm ,



< 5>

2.2 (Trash)

가

Shirley

Analyser

HVI

, ITMF

(Trash)

500 μ m

. Trashmeter

Colorimeter

TV

(pin) 가 (pepper)

가

가

가

가

가

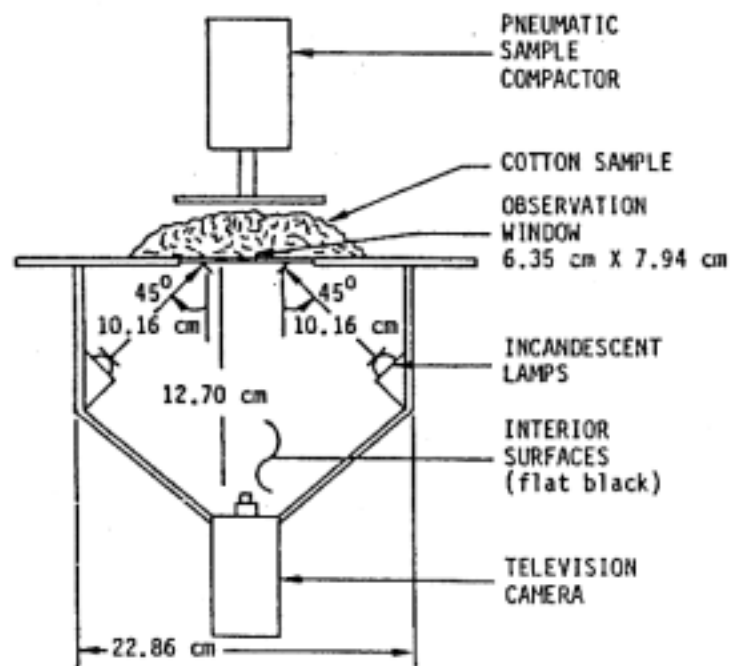
가

가

. HVI

가

. < 6> MCI 3000 Trashmeter



< 6>

(video scanning) 가

, MCI 3000

analog MCI 3500 4000 Spinlab 900 trashmeter

. TV

pixel(picture element) .

pixel

threshold . Trashmeter

threshold .

TV pixel ,

pixel

pixel pixel 100 .

pixel pixel

. MCI 4000 가 0.086mm^2 59500(248×240)

pixel 가 , Spinlab 900 가 0.06mm^2 pixel 92800

.

Trashmeter ,

.

contrast contrast

가 .

가

가 .

.

Trash Non-Lint content , ,

, %(WT%),
 Non-Lint Content
 .

$$WT\% = 2.135 + 0.0000193 \text{ AREA}^2 - \frac{0.0122 \text{ AREA}^2}{\text{Count}^2}$$
 AREA 30% pixel 40
 ,

$$\text{AREA} = 40\sqrt{N_x}$$
 (, Nx pixel 가
 , 1 999 가 .)
 Count pixel 가
 pixel
 10

$$\text{Count} = \sqrt{10N_x}$$
 (, Nx 가
 1 99 가 .)