

CANINE GENES AN OVERVIEW

THE following list of canine genes and their effect on the host animal is arranged so that the top feature is the dominant one. If you have an unexpected result in a litter it may help you to work out why it occurred, and may enable you to add definition to an individual dog's genotype.

COLOUR:

Agouti

A solid (black dominant)

a^y sable (golden)

a^w grey

a^s saddle

a^t bicour (eg black with tan points)

a solid (black recessive)

Black

B black coat and pigment

b liver (chocolate) coat, fades pigment if bb

Colour

C colour factor

c^{ch} chinchilla

c^d white (dark eyes)

c^b cornaz (blue eyes)

c Albinism

Dilution

D no dilution

d dilution (where black fades to blue and chocolate fades to fawn)

Extension

E^m black mask

E no black mask (needed for black pigment formation in the coat)

e^{br} brindle

e fading of black coat to yellow

Greying

G born black but turns blue

g born black and stays black

Intensity

INT lightest tan

int^m intermediate tan

int darkest tan

Merle

M merle

m no merle

Spotting

S solid colour (no white markings)

sⁱ Irish spotting (white on feet, chest, and around neck)

s^p piebald (largely white with patches of another colour)

s^w extreme white (largely white but with the odd patch over one eye or ear)

Ticking

T ticking

t no ticking

NOTE: All breeds carry all these colour genes, e.g. 2 from Agouti series, 2 from black series, 2 from colour series, 2 from dilution series, etc. Dominance for each series is from top of page down. Degrees of dominance occur.

COAT LENGTH (most breeds):

Hair

H hairlessness (HH possibly lethal)

h coat

Length

L short smooth coat

l long coated

GENERAL PHYSIQUE (generalisations):

Dominant

long head

large or long ears

low set ears

wide ear leather

coarse skull

short foreface

erect ears

dark eye

normal eye

brown eyes

wire coat

short coat

curly coat

poor layback of shoulder

poorly angulated stifle

high set tail

heavy bone

deep chest

straight topline

good spring of rib

short stifle

light pigment

normal hearing

good eyesight

good eye pigment

self colour

black nose

Recessive

short head

small or short ears

high set ears

narrow ear leather

fine skull

long foreface

drop or tipped ears

light eye

large bulging eye (some breeds)

blue eyes

smooth coat

long coat

straight coat

good layback of shoulder

well angulated stifle

low set tail

light bone

shallow chest

sway back

poor spring of rib

long stifle

dark pigment

deafness

night blindness

wall eyes

parti-colour

dudley nose

good mouth
normal palate
normal lip
straight tail

over/undershot jaw
cleft palate
hare lip
kinked or bent tail

NOTES: Black is dominant to red, red dominant to liver, brown, orange, lemon. Black is dominant to white. Dark pigment on nose, lips, eyelids and toenails is recessive to light pigment and is not associated with the dark eye.

POLYGENETIC TRAITS (% heritability):

Fertility 10-15; litter size 10-20; semen quality 15; viability 10-15; 60-day body weight 40; conformational features 30-65; body length 40; chest depth 50; chest width 80; head width 35; muzzle length 50; neck circumference 40; rear pastern length (hock height) 50; hip dysplasia (depends on breed) 20-50; wither height 40-65; hunting traits (depends on breed) 10-30; nervousness 50; temperament 30-50; schutzhund testing 10; success as a guide dog 50.

NOTES: Litter size tends to be repeatable. Gestation time is highly repeatable. Increasing wither height is related to increasing body weight.