

# Choose the Power of Your Gun Wisely - As It Restricts Your Pellet/Slug Options

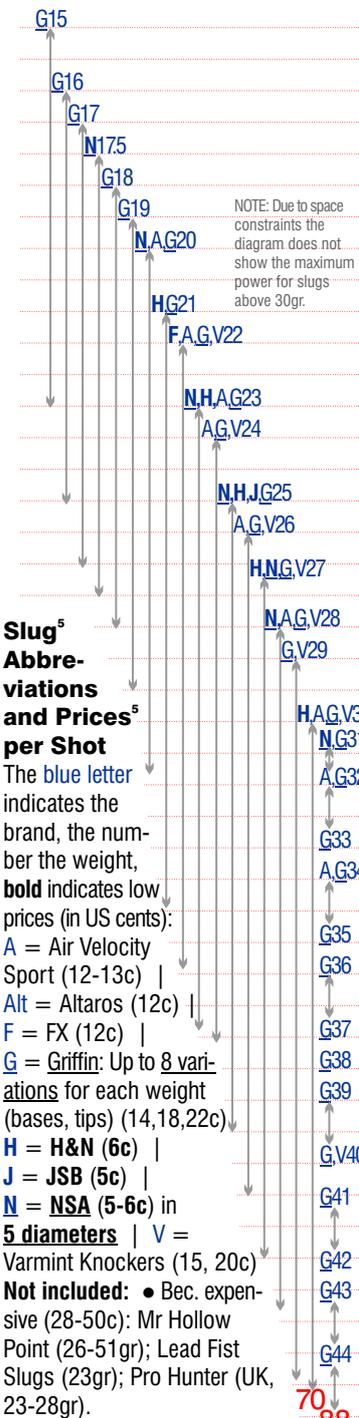
Considerations, for midrange shooting (30+ yards) and beyond:

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- (1) To avoid extreme levels of *drag and instability* at transsonic speeds – pellets should have a *max. velocity* of c. 950fps, slugs about 1000fps.<sup>1</sup>
- (2) To avoid unreasonably *steep trajectories and instability* – pellets should have a *min. muzzle velocity* of c. 600fps – slugs preferably higher than 800fps<sup>2</sup>.
- (3) In order to find just the right pellet that the gun likes (*best precision*) – it is better to have *more* pellets to choose from rather than *less*.
- (4) To have a *flatter trajectory* at longer ranges – it is better for pellets/slugs to have a *higher velocity*.
- (5) For *hollow points to expand* – they need to have at least 650fps on impact! Normally 700 to 800fps,<sup>3</sup> requiring high muzzle energies.

## .22 cal Slugs<sup>6</sup> with a Muzzle Velocity Between 800fps and 1000fps – for the Given Muzzle Energy Range (reduced by 3FPE)

For each of the blue slug weights the gray slug arrows indicate the power range at which that slug can be used at. E.g.: Slug G15 from 24 to 36 FPE.



## Muzzle Energy in FPE<sup>9/10</sup>

FPE	P1	P2	P3	P4	P5	P6	P7	P8	P9
11									
12									
13	●J RS								
14	13.43gr								
15	0.023BC								
16	Tin/Zinc Alloy:	●C Domed 14							
17	●J GTO	14.30gr, 0.024BC							
18	Lead Free	●C Domed Copper							
19	[\$] 11.75gr	14.40gr, 0.023BC							
20	0.023BC	●J Express							
21	●Baracuda	14.35gr, 0.030BC							
22	Green [\$]	●SIG Venom Lead							
23	12.96gr	14.50gr, ???BC							
24	0.023BC	●H Field Target Trophy							
25		14.66gr, 0.020BC							
26		●H Field Target							
27		Trophy Power							
28		14.66gr, 0.026BC							
29		(HP, non-expanding:)							
30		●C Hollow Point							
31		14.30gr, 0.023BC							
32									
33									
34									
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### Example #1:

Say I wanted to have the most amount of pellets to choose from to increase the chances of finding the pellet that my gun likes. → For that I go to the red numbers (muzzle energy in FPE) and find the number that is abeam of the highest amount of pellets in the gray pellet boxes to its right. In this case, 24FPE is abeam of all the pellet boxes (P1 through P9 = 3/32 lead pellets + 2 tin/zinc alloy pellets). Even at 15FPE, I still have 26 lead + 2 alloy pellets to choose from (P1-P6).

### Example #2:

Say I wanted the largest amount of slugs to choose from in order to increase the chances of finding the slug that my gun likes. → For that I go to the red numbers (muzzle energy in FPE) and find the number that is abeam of the highest amount of slugs – i.e., a slug is appropriate for a certain power if the red dotted line crosses the gray slug arrow. So, for 27FPE, there are 4 slugs to choose from (G15 through N17.5). For 31FPE, there are 10 slugs (G15 through N,A,G20). For 36FPE – 19 slugs (G15 through N,H,A,G23). For 43FPE – 37 slugs (the max.).

### Example #3:

Say I wanted to shoot hollow point pellets, but also shoot long distance, and therefore would like to use slugs (super high BC), which usually requires a high powered gun. → For that I first find where the bulk of the hollow point pellets is: they are in boxes P3, P4, P5, and P6. For P3 I can use up to 33FPE, for P4 34FPE. With 33FPE I have 11 HP pellets and 12 slugs available. With 34FPE: 7 HP pellets and 16 slugs.

### Limitations:

- For at least a mediocre level of *wind drift resistance and energy retention at the target* (hunting!) – this diagram only has pellets with at least a BC of 0.020 (source of BC, cf. <sup>4</sup>).
- For better *precision/ kill power* – only domed high BC and expanding pellets from *high quality brands* are included here. Note that a lot are rebranded, e.g.: JSB is rebranded as: Air Arms, Cometa, FX, Hatsan, etc. H&N is rebranded as: Remington, Stoeger. Crosman as: Brocock, SILCO, Webley.
- For the sake of comparison the *power of a particular gun is assumed to be the same for all pellets*. But 2-4FPE differences are common. Often, heavy pellets develop higher power in PCPs and lower power in springers.
- Slugs often have several FPE less than pellets shooting from the same gun (because of more friction in the barrel). The diagram adjusts for this by showing the slugs needing 3FPE more than the pellets.

### Abbreviations:

J = JSB | J P = JSB Predator | H = H&N | C = Crosman Premier | R = RWS | [\$] indicates a relatively high price. | BC = ballistic coefficient | fps = feet per second | FPE = foot-pounds of energy | HP = hollow point

### Footnotes:

- <sup>1</sup> Drag increases (and BC decreases) *dramatically* beyond these velocities! Due to aerodynamics (i.e., form factor) for wadcutter and HP this happens earlier – for slugs a bit later. Cf. Bob Sterne at: <https://www.gatewaytoairguns.org/GTA/index.php?topic=25008.0> <https://www.gatewaytoairguns.org/GTA/index.php?topic=70230.0> | <https://www.gatewaytoairguns.org/GTA/index.php?topic=159961.0>
- <sup>2</sup> Nick Nielsen, Nielsen Specialty Ammo (NSA), at: <https://niensenspecialtyammo.com/pages/ordering-q-a> | and: *What Is the Best Hunting Pellet*
- <sup>3</sup> Hector Medina at: <https://www.ctcustomairguns.com/hectors-airgun-blog/the-universal-pellet-is-here>
- <sup>4</sup> *Pellet Table/ BC List* at: [www.gatewaytoairguns.org/GTA/index.php?topic=149053](http://www.gatewaytoairguns.org/GTA/index.php?topic=149053)
- <sup>5</sup> *Slug Table* at: <https://www.airgunnation.com/topic/slug-table-a-spec-list-of-what-slugs-are-out-there-in-22cal>
- <sup>6</sup> Discontinued: SIG Zero Point and Wraith series; H&N Piledriver, Sniper series; Not included: H&N Rabbit.