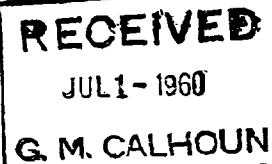


Calvin
Any comment?
W

G. M. Calhoun -2
Gail Evans
W. H. Barry
C. A. Nash
W. H. Foster, Jr.

Bridgeport, Connecticut
June 28, 1960

TO: J. D. MITCHELL
FROM: J. D. CRAMMOND
W. J. WEEKS
SUBJECT: NEW CENTER FIRE VARMIN'T CARTRIDGE



We have been continuing to give some thought to the subject of new center fire rifle cartridges since it is becoming imperative that we take some immediate action, both to offset the adverse effect of Western-Winchester's latest developments and to maintain our position of industry leader in the eyes of the rifle shooting public.

In terms of the number of rounds of ammunition consumed annually, two fields of shooting stand out far-and-away from the others -

1. Deer hunting
2. Varmint shooting

Our letter to you of April 25, concerning a .44 Remington Magnum "Improved" (300 grain bullet - 1800 f.p.s. muzzle velocity) was directed at the first market.

The second market, varmint shooting, may not approach the deer hunting market in ammunition consumption, but it is large and growing. The success of the .222 Remington serves as an indication of the interest in this field - see attachments "A" and "B". With the increasing population on the one hand, and the decreasing game supply and amount of land available for hunting on the other, varmint hunting becomes more attractive because of the easy accessibility and practically year around availability.

At the moment, the Remington name is closely associated with varmint shooting through the wide acceptance of the .222 Remington caliber and to a lesser extent of the .222 Remington Magnum caliber, and the Models 722 and 725 rifles. Favorable publicity resulting from our development work with the Advanced Marksmanship Unit at Fort Benning, and from the use of the .222 Remington caliber in bench rest competition, has linked Remington with precision shooting.

NEW CENTER FIRE VARMINT CARTRIDGE

The present situation in which we find ourselves can be summed up as follows -

1. We need new "Remington" calibers.
2. Varmint hunting is already large and is growing.
3. "Remington" is well known and well accepted in varmint hunting and precision shooting.
4. Sales of Models 722 and 725 in .222 Remington and .222 Remington Magnum calibers are gradually declining. (Refer to attachment "A").
5. Available caliber "slots" in the range .224" - .308" bullet diameters, are practically non-existent.

Accordingly, it would seem that we might profitably consider a new varmint cartridge having a bullet diameter less than .224".

A survey of available varmint rifles currently in production in this country shows that seven calibers are manufactured - .219 Zippers, .22 Hornet, .220 Swift, .222 Remington, .222 Remington Magnum, .243 Winchester, and .244 Remington. Our comparative ammunition shipments in these calibers are shown in Attachment "B", and their list price per cartridge, muzzle velocity and muzzle energy, in Attachment "C".

A new varmint cartridge should be demonstrably superior to the above mentioned cartridges. Criteria for judging a cartridge for suitability in varmint hunting would include:

1. Flat trajectory
2. Accuracy
3. Adequate power
4. Low muzzle blast
5. Non-ricocheting bullets
6. Reloadability
7. Relatively low cost
8. Low recoil

In addition, it is felt that the cartridge should have not only inherent performance advantages, but also definite sales appeal.

NEW CENTER FIRE VARMINIT CARTRIDGE

We believe that the ultra small bore - ultra high velocity sales appeal would be very timely, and suggest consideration of the .17/.222 (.222 case necked to .17 caliber same over-all length) as a cartridge which meets the criteria and has the sales appeal. Preliminary calculations indicate that the following specifications could be met:

	<u>20</u> <u>GRAIN</u>	<u>30</u> <u>GRAIN</u>	<u>45</u> <u>GRAIN</u>
Muzzle velocity (fps)	4400*	3500	3100
Muzzle energy (ft. lbs.)	860	815	960
Recoil energy (ft. lbs.) (7.5 lb. rifle)	0.885	1.14	1.55
Mid-range trajectory at 200 yards (in.)	1.3	2.0	2.2
Sectional density	.0912	.137	.205

*Very conservative. Reports indicate up to 4600 fps.

Accuracy requirements (1' of angle) may necessitate some development work on rifle barrels for such a small caliber.

Bullets are currently available in 20, 22, 25 and 30 grains from -

Fred N. Barnes, Grand Junction, Colorado
Ted Holmes Gun Shop, Mattoon, Illinois
R. B. Sisk, Iowa Park, Texas

It is reported that 45 grain bullets are available from Barnes and jacket cups are available from Speer Products Co., Lewiston, Idaho.

Such a cartridge with a .177" diameter and a muzzle velocity with the 20 grain bullet in the range of 4400-4600 fps (300-500 fps faster than any other factory loaded ammunition) should give us the sales appeal. The ammunition should be priced comparable to the .222 Remington at \$3.00 per box of 20.

ATTACHMENT AFIREARMS SALES
(UNITS)

<u>YEAR</u>	<u>222 Remington</u>			<u>222 Rem. Mag.</u>	<u>TOTAL</u>
	<u>M/722</u>	<u>M/760</u>	<u>M/725 ADL</u>	<u>M/722</u>	
1951	10,564	-	-	-	10,564
1952	11,140	-	-	-	11,140
1953	9,651	-	-	-	9,651
1954	4,393	-	-	-	4,393
1955	5,003	-	-	-	5,003
1956	4,090	-	-	-	4,090
1957	3,348	1,199	-	-	4,547
1958	1,785	528	2	1,887	4,202
1959	1,922	497	602	725	3,746
TOTAL	48,896	2,224	604	3,612	57,336
ANNUAL AVE.	5,432	741	302	1,806	6,368

WJWeeks
6-28-60

ATTACHMENT BAMMUNITION SALESREMINGTON, PETERS AND SAVAGE **

(M)

<u>YEAR</u>	<u>219 Zipper*</u>	<u>.22 Hornet</u>	<u>.220 Swift*</u>	<u>.222 Remington</u>	<u>.222 Rem. Mag.</u>	<u>.243 (80 Gr.) Winchester</u>	<u>.244 (75 Gr.) Remington</u>	<u>Total</u>
1951	40	3,215	365	2,700	-	-	-	6,380
1952	35	2,255	210	1,905	-	-	-	4,405
1953	30	2,015	210	2,410	-	-	-	4,635
1954	30	1,755	215	2,025	-	-	-	4,025
1955	15	1,545	215	2,135	-	-	520	4,415
1956	40	1,420	200	1,785	-	-	630	4,035
1957	50	1,195	140	1,760	-	375	210	3,730
1958	35	850	110	1,460	470	242	135	3,367
1959	59	1,222	129	1,750	269	288	134	3,851
TOTAL	334	15,472	1,794	20,225	739	905	1,629	38,800
Annual Ave.	37	1,719	199	2,247	369	301	325	4,311

* Remington only

**Excluding Government

ATTACHMENT CVARMINT CARTRIDGESFOR WHICH RIFLES ARE CURRENTLY PRODUCED

		<u>Bullet Type</u>	<u>Price/ Cartridge</u>	<u>Muzzle Velocity (f.p.s.)</u>	<u>Muzzle Energy (ft.lbs.)</u>	<u>Section Density Ratio</u>	
.219	Zipper	56 Gr.	Mu	\$.172	3110	1200	.160
22	Hornet	45 Gr.	SP	.128	2690	720	.128
22	Hornet	45 Gr.	SP	.128	2690	720	.128
220	Swift	48 Gr.	SP	.185	4110	1800	.137
222	Remington	50 Gr.	SP	.150	3200	1140	.142
222	Remington	50 Gr.	MC	.150	3200	1140	.142
222	Rem. Mag.	55 Gr.	SP	.165	3300	1330	.157
243	Winchester	80 Gr.	PSP	.205	3500	2180	.193
244	Remington	75 Gr.	PSP	.205	3500	2040	.181