Mixing Free-Range Hens and Ruminants on Pasture

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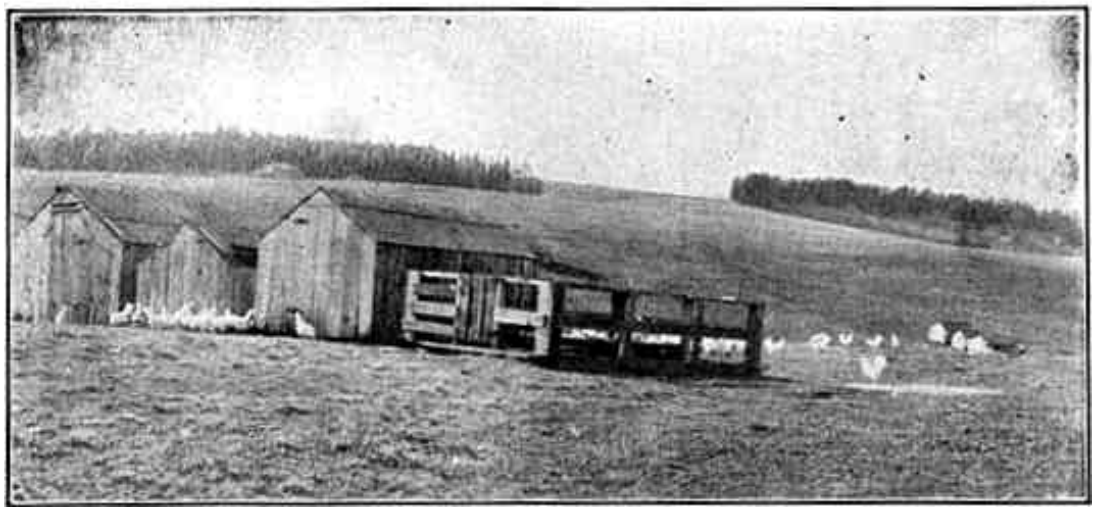
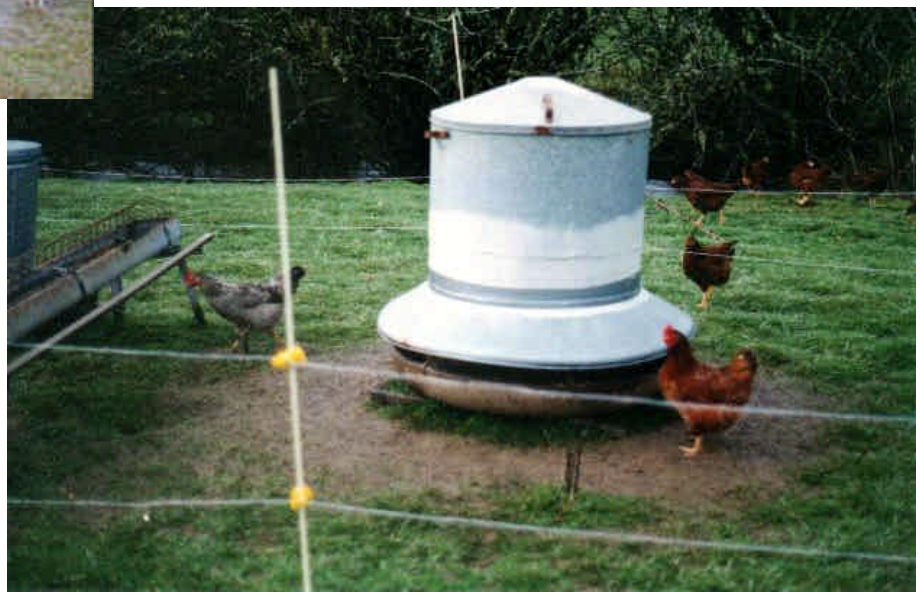
Free Range in Petaluma CA, 85 Years Ago



Our Farm, 4 Days Ago



About Us

- This is our fifth year selling free-range eggs
- We started with 40 hens and have about 500 now
- We had the choice of adding ruminants or spending our lives mowing
- Mixed chicken/ruminant pasture was once the method that made Petaluma, CA “The Egg Basket of the World”

Free-Range Eggs

- Free-range eggs have darker yolks and “eggier” flavor
- They have elevated vitamin levels, especially vitamin A
- They command high prices at farmer’s markets, health-food stores, bakeries, restaurants, and locally-owned supermarkets

Hens on Pasture

- $1000 additional profit per acre from free-range eggs
- 2.5 tons of manure produced per acre per year (106 lb. N, 30 lb. P, 61 lb. K)
- Excellent cash flow -- something to sell every day
- Low initial investment
- Scalable to thousands of hens on a family farm

$1000 Additional Profit Per Acre From Free-Range Eggs

- Our cheapest eggs sell for $2.00/dozen, wholesale
- Burdened cost is just under $1.00/dozen, leaving more than $1.00/dz. profit
- Production rates of 20 dozen eggs/hen/year are readily attainable
- 20 dz./hen * 50 hens/acre = 1000 dz./acre/year

2.5 tons of manure produced per acre per year (106 lb. N, 30 lb. P, 61 lb. K)

- Chicken manure adds nutrients and organic matter
- Hen manure is high in calcium and raises soil pH
- About 70% is “spread” outside the chicken house; 30% is concentrated inside

Excellent Cash Flow -- Something to Sell Every Day

- A flock will give you eggs every day of the year
- Production peaks in April-May, troughs in October-November
- Cost to raise a chick to point of lay is about $5.00
- A hen that lays 20 dozen eggs in her first laying year brings over $40 in sales

Low Initial Investment

- Houses cost $3/hen
- Feeders, waterers, and nest boxes are very cheap if you make them or buy them used
- Used processing equipment (egg candlers, washers, graders) is also very cheap

How It's Done

- The "Petaluma System":
- Small hen-houses are scattered around the pasture
- "Colonies" of hen-houses share a feed area and nesting house
- Heavy labor is shunned

The Petaluma System

- Developed in Petaluma, California before 1900
- Used on mixed cattle/poultry and sheep/poultry farms
- Most family farms in Petaluma kept 1,000-2,000 hens in 1910; some kept over 5,000 hens
- Well-suited to the maritime Pacific climate, where hens can go outside every day of the year

Colonies

- One colony consists of 200 hens
- Buildings consist of roosting houses and a nesting house
- Roosting houses contain nothing but roosts
  - 10” of roost space per hen, roosts on 14” centers
- Nesting houses have nothing but nest boxes and storage
  - One nest box for every 4-5 hens

Colonies, Continued

- Feeding and watering is done outdoors at a distance from the houses
- Typically, no fencing is used except around the feed area
- Chickens and ruminants share pasture without fuss
- By 1960, some free-range farmers used an electric wire 5” off the ground to keep chickens in and predators out.

Avoiding Heavy Labor

- Feed is delivered to the outdoor feeders by truck
- With large flocks, eggs are gathered onto flats and cases, then collected by truck or ATV
- Houses are floorless to prevent the need for shoveling manure. No litter is used.
- Houses are moved 30-50 feet a few times a year with a tractor, and the manure spread with a rear scraper blade.

House Design

- I like small, cheap houses that I can build in a day
- My houses are 8'x'8 because they fit through a 10' gate and use the cheapest possible lumber
- Traditional Petaluma houses were 10x12'
- Pressure-treaded skids go on the bottom, a metal roof on the top, and OSB siding in between
- Metal roofing is the simplest and most durable

House Design -- Framing

- I use studs and purlins on 4’ centers. I connect the purlins to the studs with carriage bolts to keep the roof from peeling off in high winds
- I use one rafter down the middle to stiffen the roof
- Diagonal braces on all four bottom corners keep the house from racking while moved. I use scrap 2x4’s and bang them in with long nails

House Design -- Siding

- OSB siding is cheap. Use large-headed nails (roofing nails) to attach it. My oldest houses have seen four winters without paint, and are doing fine. As it flakes, though, OSB provides lots of habitat for red mites.
- 3/8” CDX plywood is also good.
- I’m considering using corrugated sheet metal for siding

House Design -- Roof Height

- Houses with roofs over 6’ high flip over in high winds and must be staked down
- Houses with 4’ roofs don’t flip over but are uncomfortable to work in
- Since there’s nothing interesting in a henhouse, a 4’ roof is fine, so all my new houses are 4’ high
- Brooder houses need to be taller for ease of working

House Design -- Doorway

- The front wall extends only about 20” up from the ground (low enough for me to step over).
- The chickens hop up to the top of the front wall and then into the house.
- Predators, who have to climb, run into the electric fence wire strung on insulators nailed to the front wall

House Design -- Roosts

- Roosts can be high or low.
- Low roosts are a kinda-sorta floor and should be strong enough to walk on.
- High roosts are about a foot higher than the doorway. Hens like to roost as high up as possible.
- High roosts should be easily removable so you can get to eggs in the back corners.

House Design -- Other

- Don’t bother with indoor feeders (hard to fill, attract rats)
- Don’t bother with indoor waterers (messy)
- Don’t’ bother with floors (attract rats, force you to use litter)
- Don’t bother with chicken wire; use electric fence wire to keep predators out

Moving the Houses

- Move your houses when the area around them gets muddy or the manure inside reaches the sills
- Hens can find their house again if it's moved a short distance, but not a long one
- Train your hens by moving the house 20 feet or less the first time
- You can move houses with experienced hens up to 100 feet at a time

Moving the Houses, Continued

- Move the houses with a tractor
- Don’t move houses just before nightfall -- give the hens several hours to find it again
- The patches where the houses used to be will not grow grass for a year unless you spread the manure
- A rear scraper blade on the tractor does a great job spreading the manure

Feed Areas

- Feed areas should be away from the houses (50’-150’) to encourage ranging
- Waterers should be away from the feeders to keep hens from lounging around feeders and bullying each other
- Ruminants must be kept out of the feeders

Feed Areas -- Feeders

- You need weatherproof feeders.
- Turkey range feeders are good
- Home-built plywood feeders are pretty much the same as lamb or pig range feeders
- There should be at least 2” of feeder space per hen
- We make no attempt to close the feeders at night

Feeders Areas -- Feeders, Continued

- The ideal feeder can be filled from feed sacks while standing on the tailgate of a pickup truck
- Feeders should hold 2-4 weeks of feed to minimize labor
- Feed should be used up within a month
- 1000 lb. capacity will feed 100 hens for a month

Feed Areas -- Fencing

- Ruminants must be kept out of the feeders
- Electric fence works pretty well, but kids and lambs may creep underneath
- Put the fence close enough to the feeders that the sheep/goats can't stay in without being shocked
- Hens will duck under wires that are higher than their backs, but will be kept out by lower wires

Nest Houses

- Nest houses have nest boxes and storage, but no feeders, waterers, or roosts
- Nest houses keep eggs cooler, drier, cleaner, safer
- Nest houses should have litter to help clean the hens' feet before they lay
- Nest houses should be fairly dark but as well-ventilated as possible

Nest Houses, Continued

- Nest houses become a necessity when the hens lay more eggs than you can carry
- Eggs in wire egg baskets cannot be transported by vehicle without cracking the bottom eggs
- Eggs can be collected onto flats, put into wire egg crates, and collected later by pickup truck or ATV
- Nest houses require storage space for litter, flats, empty crates, and full crates

Problems

- Predators
- Weather

Predator Problems

- Predators are the single worst problem
- Electric fence wire on houses prevents predators from getting in, so losses are on the field
- Most predators are nocturnal, while hens are diurnal, so losses happen at dawn and dusk
- Simple electric perimeter fences can keep out predators and keep in hens. A single wire 5” high has worked wonders for us.

Predator Problems, Continued

- Electric netting is extremely effective but is expensive and a nuisance to deal with
- Raccoon losses increase when houses are at the edge of a field or when the grass gets very tall
- We lose only a few hens per year to hawks
- We tried a llama as a livestock guardian, but she didn’t do her job

Weather

- Cold weather (with daytime highs below freezing) reduce egg production and freeze waterers.
- Hot weather is not a problem in the Coast Range
- High winds can flip taller houses over if they aren't staked down

Feed

- Our local customers do not demand organic certification or organic feed
- Profitable hens require a balanced laying ration formulated by a competent poultry nutritionist
- We buy feed by the ton, in sacks, delivered
- Bulk feed delivered to a feed bin is cheaper, but has a high minimum order

Feed Value of Pasture

- Pasture provides modest year-round feed savings of 5%-15%
- Pasture provides very high vitamin levels, considerable protein, but few carbohydrates
- Pasture deepens yolk color and increases egg flavor. Flavor is the most important selling point
- The Omega-3/Omega-6 fatty acid profile of pastured eggs is superior to ordinary eggs

Management Value of Pasture

- Pasture eliminates cannibalism
- Most disease problems, especially coccidiosis, are greatly reduced on pasture
- Panicky birds such as Leghorns are less of a nuisance on pasture
- Vaccination and beak-trimming are a waste of money on pastured hens

Getting Started

- We started selling eggs when we had 40 hens and grew to 500 in two years
- One way to get started would be to buy 100 pullet chicks in November. They would be laying by May, in time for the farmer's market season
- Try to have local health-food stores, bakeries, and locally-owned supermarkets lined up by the end of the farmer's market season

Stocking Density

- At 50 hens per acre, the pasture thrives except right around the houses
- At 200 hens per acre, pasture will be destroyed
- For superior egg flavor, the hens must eat green grass
- Long-term overgrazing leads to disease problems
- Mixing ruminants and hens reduces the temptation to overstock

Recommended Reading

- Milo Hastings, The Dollar Hen, 1909
- James Dryden, Poultry Breeding and Management, Orange Judd Press, 1916
- Morley Jull, Successful Poultry Management, McGraw-Hill, 1943
- North and Bell, Commercial Chicken Production Manual, Van Nostrand Reinhold, 1990
- Joel Salatin, Pastured Poultry Profits, 1993