

California Wheat Varieties for Artisan Sourdough Bread Baking

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Flour quality for artisan bread should be creamy in color, able to absorb up to 70% water hydration for baguettes, 80-85% for rustic and ciabatta bread, and have enough dough strength to withstand long fermentation—minimum of 3 hours to overnight bulk fermentation and final proofing. The dough should be able to mix fast, and mixing time should be kept at minimal for artisan bread to minimize the loss of flavor and crumb color. Artisan bread is baked with steam on a deck oven to produce a nice golden reddish crust color that is thin and crispy. The final bread product should have decent loaf volume, thin, crispy crust, open and regular large cells structure with good flavor.

The objective of this study is to analyze California Wheat Varieties to evaluate its suitability for Artisan bread baking. A total of 8 California Wheat Varieties were analyzed for artisan sourdough bread baking. The varieties include, six HRS wheat varieties, WB 9229, WB 9350, WB Joaquin Oro, Summit 515, Cal Rojo, UC Central Red, and two HWS wheat varieties, UC Patwin 515 and UC Patwin 515 HP. The wheat samples were analyzed for grain, milling, and flour quality at the California Wheat Commission laboratory. The flour samples were baked into Sourdough Bread with Keith Giusto at the Central Milling Artisan Baking Center located in Petaluma, California.

All the varieties were mixed, fermented, and shaped during the same day following a standard recipe and process. The shaped loaves were proofed on a baker's couche and retarded at 40 °F overnight. In the morning of the next day, the loaves were baked at 437 °F for 25 minutes and allowed to cool for 2 hours before the bread was evaluated for bread crust, bread crumb, bread flavor, and bread volume.

Table 1: Mixing Properties, Dough Handling Properties, and Bread Evaluation

| Sample ID | Mixing Properties | Dough Handling | Bread Evaluation |
|-------------|--|--|--|
| Cal Rojo | Medium Fast Mix Time. Medium strong dough | Dark dough color, slightly dry, overall acceptable dough | Okay loaf volume. Tough texture, crumb color slightly grayish white, and no flavor |
| Summit 515 | Extensible and soft gluten. Short mix time | Soft and extensible, easy to shape | Average loaf volume. Very light, subtle taste, not bad |
| Joaquin Oro | Medium-fast mix time strong yet extensible | White dough color, good and well-balanced dough | Good loaf volume, great crust and crumb color, large cells, sweet and nutty flavor, not as sour. |

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| WB 9229 | Strong. Long mix time | Strong dough | Average loaf volume, very tough texture, rubbery, dark grayish crumb color, no flavor |
| WB 9350 | Extra strong. Long mix time | To strong, requires extra force to shape | Average loaf volume, good cell structure, white crumb color, nice smell, but no flavor. |
| Central Red | Balance, strong and extensible. Medium mix time | Good balance, easy to shape, less force | Good loaf volume, good cell structure, creamy crumb, not much flavor |
| Patwin 515 | Good mix time. Slightly soft and extensible and good aroma | Extensible, perfect hydration | Average loaf volume, good cell structure, white crumb, soft and tender texture, okay flavor |
| Patwin 515 HP | Good mix time, slightly soft, and good aroma | Extensible, perfect hydration | Average loaf volume, good cell structure, white grayish crumb, bad aftertaste. |

Based on the results of this study, **Joaquin Oro**, **Central Red**, and **Patwin 515** are the most suitable varieties for artisan bread baking. It meets most of the criteria considered as suitable flour quality for artisan bread.

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