Validation of the NCCC-42 Vitamin-Trace Mineral Premix in starter pigs. T.D. Crenshaw, M. Azain, G.M. Hill, P.S. Miller and the NCCC-42 Swine Nutrition Committee.

A multi-state (WI, GA, MI, and NE) experiment was conducted by the NCCC-42 Swine Nutrition committee to evaluate a vitamin trace mineral premix (VMP). A VMP was formulated to provide minimal quantities of vitamins and trace minerals needed to complement nutrients supplied by ingredients typical in US swine diets. In the current trial (18 to 23 d weaned pigs), VMP was added to a complex starter diet to supply either 0, 1X or 3X supplemental vitamin concentrations where X equals quantities of vitamins to meet minimum requirements if nutrients from other ingredients are considered. Because of limited data on bioavailability of several B vitamins (biotin, choline, folate, pyrodixine, and thiamin) in feed ingredients, a B vitamin premix (+B) was formulated to supply these vitamins at minimum concentrations. The +B was added to diets with either 1X or 3X (1X+B and 3X+3XB) VMP. A sixth treatment (St) involved standard premixes used at each respective station. Trace minerals were constant in all diets except St. Pigs were allowed continuous access to assigned meal diets and water throughout a 28-d trial. Differences among stations were detected ($P < 0.05$), but no interactions among stations and diets were detected for ADG or ADFI responses. Pigs fed diets with no VMP (0X) gained less and consumed less feed than pigs in other groups ($P < 0.05$). No advantages in ADG nor ADFI were detected in pigs fed diets with additional 3X VMP or VTM+B at 1X or 3X levels. Pigs fed St diets tended ($P < 0.10$) to gain faster and consumed more feed ($P < 0.05$) than pigs fed VMP diets at 1X or 3X. In conclusion, 1X VTM allowed adequate growth over a 4-wk nursery trial. Additions of higher quantities of VTM or supplemental B vitamins did not improve growth.

	Vitamin Premixes X NRC Concentrations[1]						
Trait	0X	1X	3X	1X+B	3X+B3X	St	SEM
ADG, kg/d	0.295[a]	0.308[b]	0.313[b]	0.314[b]	0.320[b]	0.335[c*]	0.01
ADFI, kg/d	0.484[a]	0.493[b]	0.515[b]	0.509[b]	0.513[b]	0.542[c]	0.01

1. Means based on 18 pens/treatment. Means within a row with different superscripts differ ($P < 0.05$) or * ($P < 0.10$).